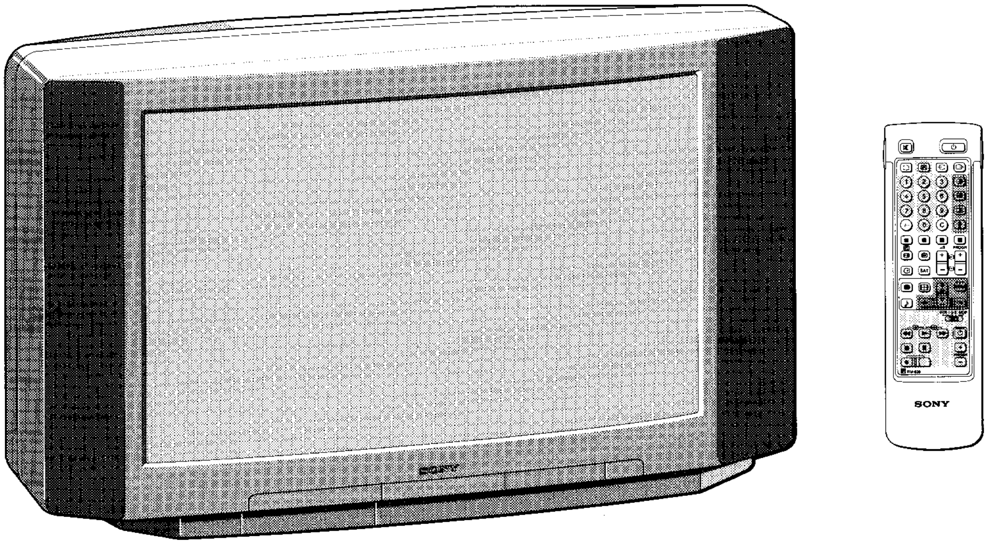
SERVICE MANUAL

AE-3 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-28WS3R	RM-838	OIRT	SCC-J29F-A				



SuperTrinitron

WIDE

MICROFILM

TRINITRON® COLOR TV

SONY®

ITEM MODEL	Television System	Channel Coverage	Colour System
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: B-Q UHF: S21-S41	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)

MODEL	OIRT
Power Consumption	151W

SPECIFICATIONS

Picture Tube	Super Trinitron Wide Approx. 71 cm (28 inches) (Approx. 66 cm picture measured diagonally) 110° -deflection

Rear/Front Terminals

[REAR]

→⊡ 21-pin Euro connector (CENELEC standard)
- Input for audio and video signals
- Input for RGB
- Outputs of TV video and audio signals

⇄2/→Ⓢ2 21-pin Euro connector
- Input for audio and video signals
- Input for S video
- Outputs of TV video and audio signals (selectable)

⇄4/→Ⓢ4 21-pin Euro connector
- Input for audio and video signals
- Input for S video
- Outputs of TV video and audio signals (monitor out)

→Ⓢ2 ,→Ⓢ4 S video inputs - 4 pin DIN
→⊙ Audio inputs (L, R) - phono jacks
→Ⓢ S video output - 4 pin DIN
⊙→ Audio outputs - phono jacks
⊙→ Audio outputs (variable) - phono jacks
External speaker terminals : 2-pin DIN (5)

[FRONT]

→⊡ Video input - phono jack
→⊙3 Audio inputs - phono jacks
→Ⓢ3 S video input - 4-pin DIN
Ω Headphone jack : stereo minijack

Sound output	2x30W (music power) Centre 1x30W Surround 2x15W
Dimensions	Approx. 798x491x531 mm
Weight	Approx. 47 kg
Supplied accessories	Remote Commander RM-838 (1) Scroll Commander RM-860 (1) Batteries R6 (2) Surround speaker (2) Surround Loudspeaker lead (2)
Other features	Digital comb filter (High resolution) FASTEXT DNR (Digital Noise Reduction) Scroll Commander Dolby Digital Surround System 100Hz Digital Plus Graphic Equalizer PAP (Picture and Picture) PAL plus

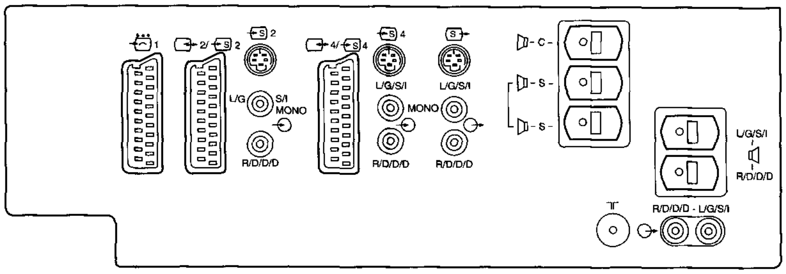
[RM-838]

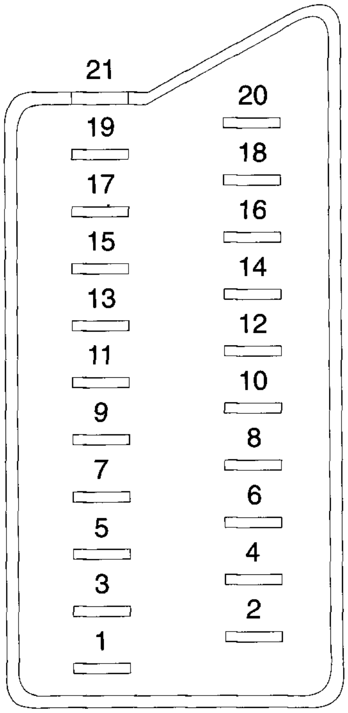
Remote control system	infrared control
Power requirements	1.5V dc 1 battery IEC designation R6 (size AA)
Dimensions	Approx. 65x225x21 mm (w/h/d)
Weight	Approx. 157g (Not including battery)

Design and specifications are subject to change without notice.

Model name / Item	KV-28WS3R	Model name / Item	KV-28WS3R
Pal Comb	ON	PAP	ON
PIP	OFF	MLT.PIP	OFF
RGB Priority	ON	Scart 1	ON
60 Programs	OFF	Scart 2	ON
PAL PLUS	ON	Front 3	ON
DOLBY	ON	Scart 4	ON
DSP	OFF	DYN. CONV.	OFF
EQUALIZER	ON	PIC. ROT.	ON
SUB TUNER	ON	Language Preset	OIRT

21 pin connector (⇥1, ⇥2 /⇥S 2 , ⇥4/⇥S 4)

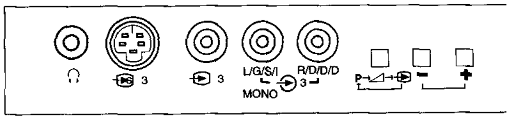




Pin No		Signal	Signal level
1	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance:less than 1kohm*
2	○	Audio input B (right)	Standard level:0.5Vrms Input impedance:More than 10kohms*
3	○	Audio output A (left)	Standard level:0.5Vrms Output impedance:less than 1kohm*
4	○	Ground (audio)	
5	○	Ground (blue)	
6	○	Audio input A (left)	Standard level:0.5Vrms Input impedance:More than 10kohms*
7	○	Blue input	0.7V±3dB, 75ohms, positive
8	○	Function select (AV control)	High state (9.5—12V):Part mode Low state (0—2V):TV mode Input impedance:More than 10kohms Input capacitance:Less than 2nF
9	○	Ground (green)	
10	○	Open	
11	○	Green	Green signal:0.7V±3dB. 75ohms, positive
12	○	Open	
13	○	Ground(red)	
14	●	Ground (blanking)	
15	○	Red input	0.7V±3dB, 75ohms, positive
	—	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance:75ohms
17	○	Ground (video output)	
18	○	Ground (video input)	
19	○	Video output	1V±3dB, 75ohms, positive Sync:0.3V(−3, +10dB)
20	○	Video input	1V±3dB, 75ohms, positive Sync:0.3V(−3, +10dB)
	—	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync:0.3V(−3, +10dB)
21	○	Common ground (plug, shield)	

○ Connected ● Not Connected (open) * at 20Hz - 20kHz

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm , positive Sync. 0.3V -3/+10 dB
4	C (S signal) input	0.3V ± 3dB 75 ohm , positive Sync.



CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.

THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

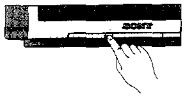
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

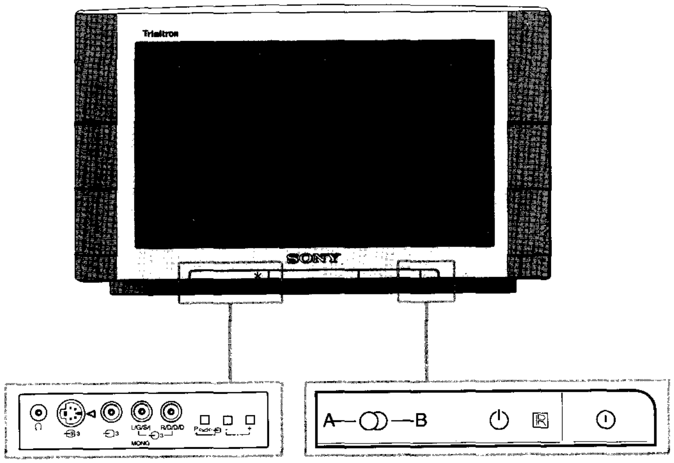
SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

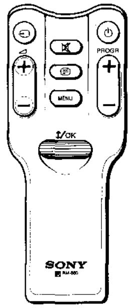
TV set - front



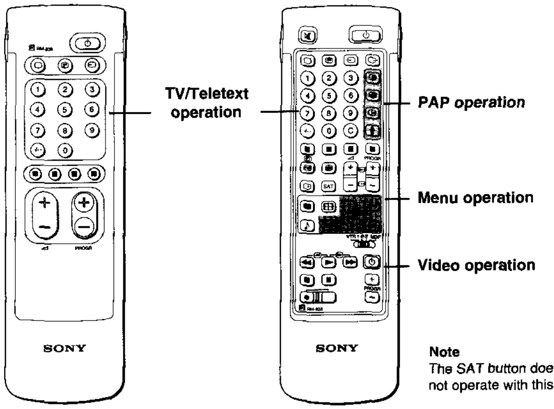


Symbol	Name	Refer to page
⏻	Main power switch	41, 48
⏻	Standby indicator	48
A-◯◯-B	Stereo A/B mode indicators	50
∩	Headphones jack	59
⇥Ⓢ 3, ⇥◯ 3, ⇥◯ 3	Input jacks (S video/video/audio)	59
P → ⊿ → ⇥◯	Function selector (Programme/volume/input)	48
–/+	Adjustment buttons for function selector	48

Scroll Commander RM-860



Remote Commander RM-838



Simple side

Full-Function side

Note
The SAT button does not operate with this TV.

TV/Teletext operation

Symbol	Name	Refer to Page
🔇	Muting on/off button	49
⏻	*Standby button*	48
▢	TV power on/TV mode selector button	48
⊜	Teletext button	49
⇥◯	Input mode selector	49
◯→	Output mode selector	60
1,2,3,4,5,6, 7,8,9 and 0	Number buttons	48
–/--	*Double-digit entering button*	48
C	Direct channel entering button	47
⊿ +/–	Volume control button	48
PROGR +/–	Programme selectors	48
⊜⊜	Teletext page access buttons	56
●	Picture adjustment button	50
♪	Sound adjustment button	50
⊕	*On-screen display button*	49
⊜	Teletext hold button	56
◎	Time display button	49
■■■■	Fastext buttons	56
⊛	»Freeze« button	49
⊞	Button to change Screen Format	49

PAP (Picture-and-picture) operation

Symbol	Name	Refer to Page
◑	PAP on / off button	53
↑	*PAP source selector*	53
⊕	Swap button	53
◫	PAP freeze button	53

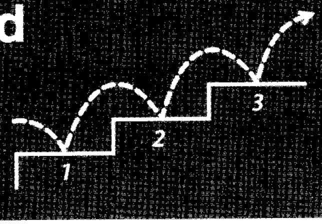
Menu operation

Symbol	Name	Refer to Page
MENU	Menu on / off button	41
△+/▽–	Select buttons	41
OK	OK (confirming) button	41
←	Back button	41
↕/OK	Scroll Commander: Roller to select/ confirm menu functions	41

Video operation

Symbol	Name	Refer to Page
VTR1/2/3 MDP	Video equipment selector	61
◀◀ ▶ ▶▶ ■ ❚❚ ● ⏻ PROGR +/–	Video equipment operation buttons	61

Getting Started



Step 1 – Connection

Notes:
- Connect the speakers using the leads provided making sure to observe the following polarity: The striped lead is (+) and should be connected to the red terminal on the speaker. The black lead is (–) and should be connected to the black terminal on the speaker.

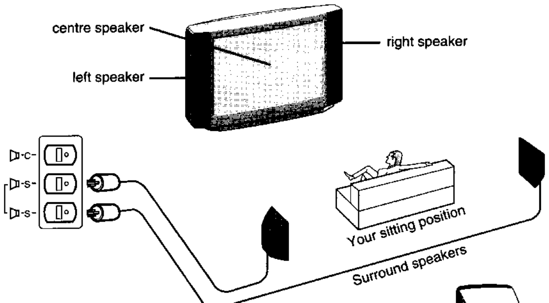
❶ Connect the speakers

Dolby (*) Pro Logic Surround requires normally 5 speakers, whose functions are as follows:
Centre speaker: (incorporated in the TV set): to anchor the stable sound image, like dialogue, to the TV screen.
Left and Right front speakers: for the normal two-channel stereo broadcasts.
Surround speakers: for the special effects created by the surround channel.

To obtain the full benefit of your Dolby Pro Logic Surround TV, the speakers should be positioned as shown below:

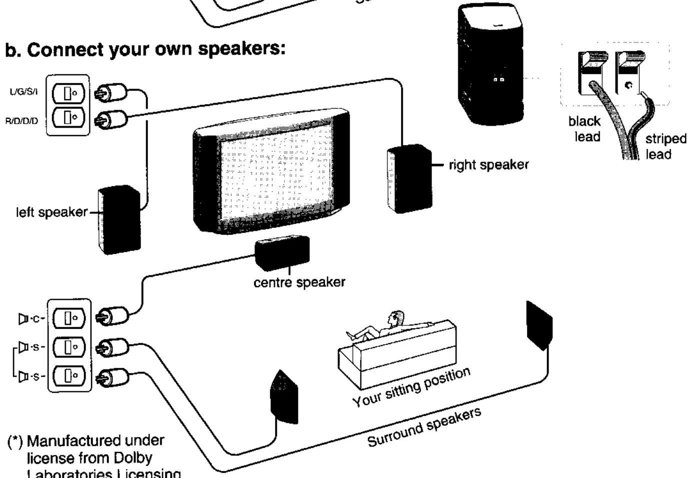
Before switching on: connect the speakers to the TV set.

a. Connect the speakers provided only:


centre speaker
left speaker
right speaker
-C-
-S-
-S-
Your sitting position
Surround speakers

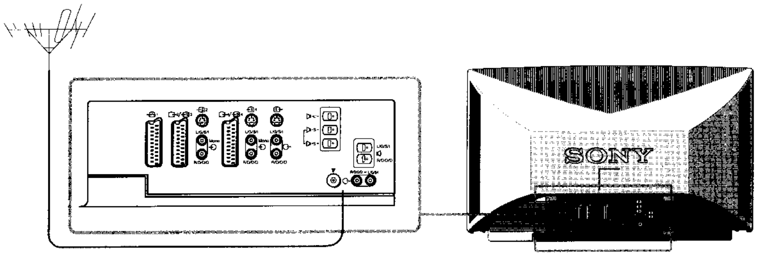
Note:
If you prefer to use your own speakers, make sure they are at least 8 Ω impedance and are magnetically shielded otherwise picture distortion may occur.

b. Connect your own speakers:


L/G/S/I
R/D/D/D
left speaker
right speaker
centre speaker
black lead
striped lead
-C-
-S-
-S-
Your sitting position
Surround speakers

(*) Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY, the double-D symbol ◻◻ and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

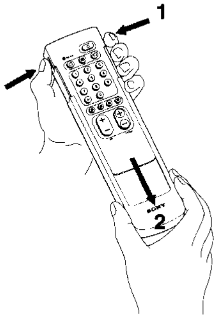
❷ Connect the aerial



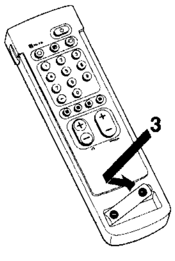
Fit an IEC aerial connector attached to 75-ohm coaxial cable (not supplied) to the ⫪ socket at the rear of the TV. Make sure to use an aerial cable corresponding to the relevant regulations.

Step 2 – Preparation

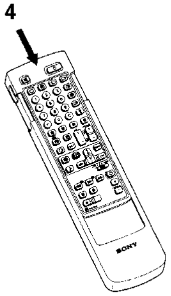
Insert the batteries into the Remote Commanders



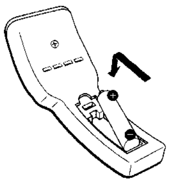
Remove the cover.



Check the correct polarities.

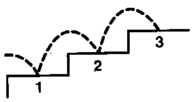


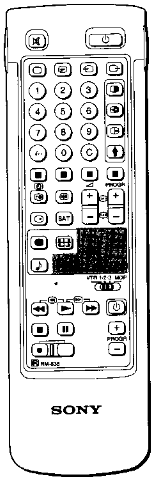
Refit the outside cover making sure that the Full-Function side is visible to use the menu in Step 3.



Check the correct polarities.

Step 3 Tuning in to TV Stations





Once you have set up the TV, you can choose the language of the menu. Then you should preset the channels (up to 100 channels) by choosing either the automatic or manual method.

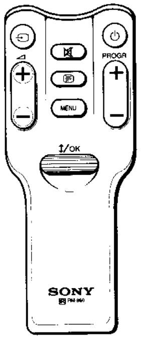
The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you only have a few channels and want to preset channels one by one. The manual method is also convenient for allocating programme numbers to various video input sources.

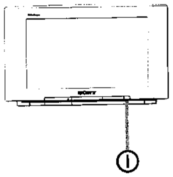
Before you begin

- Check that the Full-Function side of the Remote Commander is visible.
- Locate Menu operation buttons on the Remote Commander. They are shaded in the illustration at the left.

Easy Menu operation using the Scroll Commander

In addition to our double-sided Remote Commander, your TV set is supplied with an extra Remote Commander. The »Scroll Commander« works with a roller for convenient, fast-access operation of the menu functions.
Move the roller upwards to move the cursor upwards, move the roller downwards to move the cursor downwards, press the roller to confirm a selection. The other buttons on this commander have the same functions as the respective buttons on the double-sided Remote Commander.





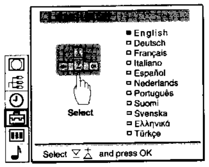
❶ Choose a language

1 Depress ⏻ on the TV.
The TV will switch on. If the standby indicator on the TV is lit, press ○ or a number button on the Remote Commander.

2 Press the MENU button.
The LANGUAGE menu appears. (See Fig. 1)

MENU

3 Select the language you want with △+ or ▽− and press OK.



■ English
□ Deutsch
□ Français
□ Italiano
□ Español
□ Nederlands
□ Português
□ Suomi
□ Svenska
□ Ελληνικά
□ Türkçe

Select ▽ △ and press OK

Fig. 1

To go back to main menu:
Keep pressing ⬅.

To go back to the normal TV picture:
Press MENU. Normal TV picture will be restored after one minute if menu functions are not selected.

Note on the Demo function:
If you choose Demo in the Installation menu, you can see a sequential demonstration of the menu functions.
Press MENU to stop the function.

❷ Display the Menu

Press the MENU button twice.
The main menu appears. (See Fig. 2)

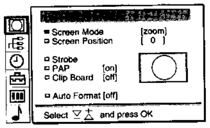
Using △+ or ▽− select the symbol ▣ and press OK.

Now, choose one of the methods described overleaf:

»Preset Channels Automatically«

or

»Preset Channels Manually«.



■ Screen Mode [zoom]
□ Screen Position [0]
□ Strobe
□ PAP [on]
□ Clip Board [off]
□ Auto Format [off]

Select ▽ △ and press OK

Fig. 2

With this method, you can preset all receivable channels at once.

To stop automatic channel presetting:
Press ⬅ on the Remote Commander.

Notes:
- After presetting the channels automatically, you can check which channels are stored on which programme positions. For details, see »Displaying the Programme Table« on page 49.
- You can sort the programme positions to have them appear on screen in the order you like. For details, see »Sorting Programme Positions« on page 44.

Note:
Programme names are automatically taken from Teletext if available. If not, please refer to page 46 »Captioning a Station name« for more information.

❸ Preset channels automatically

1 Select the symbol ▣ for »Preset« with △+ or ▽− and press OK.
The PRESET menu appears. (See Fig. 3.)

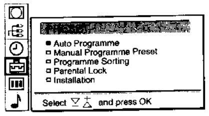
2 Select »Auto Programme« with △+ or ▽− and press OK.
The AUTO PROGRAMME menu appears. (See Fig. 4)

3 Press OK.
Select if necessary the TV broadcast system (B/G for Western European or D/K for Eastern European countries) with △+ or ▽− and press OK. The first element of the »PROG« number will be highlighted.

4 Select the programme (number button) from which you want to start presetting. Select the first element of the double-digit number with △+ or ▽− or the number buttons (e.g. For »04«, select »0« here) and press OK.
The second element of »PROG« will be highlighted.

5 Select the second element of the double-digit number with △+ or ▽− or the number buttons (e.g. For »04«, select »4« here) (See Fig. 5) and press OK.

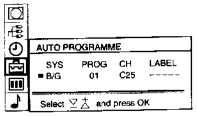
6 Select »C« or »S« with △+ or ▽− and press OK.
The automatic channel presetting starts.
When presetting is finished, the preset menu reappears. All available channels are now stored on successive number buttons. Press menu to restore normal TV picture.



■ Auto Programme
□ Manual Programme Preset
□ Programme Sorting
□ Parental Lock
□ Installation

Select ▽ △ and press OK

Fig. 3

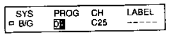


AUTO PROGRAMME

SYS	PROG	CH	LABEL
■ B/G	01	C25	-----

Select ▽ △ and press OK

Fig. 4



SYS	PROG	CH	LABEL
□ B/G	0▮	C25	-----

Fig. 5

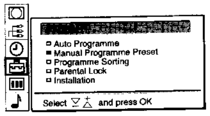
Use this method if there are only a few channels in your area to preset or if you want to preset channels one by one.
You may also allocate programme numbers to various video input sources.

If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to main menu
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

❸ Preset channels manually

1 Select the symbol ▣ for »Preset« with △+ or ▽− and press OK.
The PRESET menu appears. (See Fig. 6)

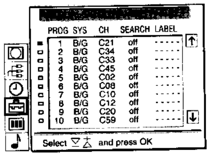
2 Select »Manual Programme Preset« with △+ or ▽− and press OK.
The MANUAL PROGRAMME PRESET menu appears. (See Fig. 7)



□ Auto Programme
■ Manual Programme Preset
□ Programme Sorting
□ Parental Lock
□ Installation

Select ▽ △ and press OK

Fig. 6



	PROG	SYS	CH	SEARCH	LABEL
■	1	B/G	C21	off	-----
□	2	B/G	C34	off	-----
□	3	B/G	C33	off	-----
□	4	B/G	C45	off	-----
□	5	B/G	C02	off	-----
□	6	B/G	C08	off	-----
□	7	B/G	C10	off	-----
□	8	B/G	C12	off	-----
□	9	B/G	C20	off	-----
□	10	B/G	C59	off	-----

Select ▽ △ and press OK

Fig. 7

3 Using Δ+ or ∇–, select the programme position (number button) to which you want to preset a channel, and press OK.

4 Select, if necessary the TV broadcast system or a video input source (EXT) with Δ+ or ∇–.

5 Then press OK. The CH position wil be highlighted. (See Fig. 8)

6 Using Δ+ or ∇–, select C (to preset a regular channel), S (cable channel) or F (to tune in by frequency) and press OK.
The first element of the »CH« number will be highlighted.
If you have selected EXT in step 5, select the video input source with Δ+ or ∇–. (See Fig. 9)

To tune in a channel by frequency:
After selecting F in step 6, enter three digits using the number buttons.
Press OK.

There are two ways to preset channels. If you know the channel number, go to step »7-Manual«,

or

if you don't know the channel number, go to step »7- Search«.

7 ***Manual***

-a Select the first element of the »CH« number with Δ+ or ∇– or the number buttons and press OK.
The second element of the »CH« number will be highlighted.

-b Select the second element of the number with Δ+ or ∇– or the number buttons.
The selected number appears. (See Fig. 10)

-c Press OK
The »SEARCH« position is highlighted and the selected channel is now stored. (See Fig. 11)

-d Press OK until the cursor appears by the next programme position.

-e Repeat steps 3 to 7 to preset other channels.

If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to main menu:
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

7 ***Search***

-a Press OK repeatedly until the colour of the SEARCH position changes.

-b Start searching for the channel with Δ+ (up) or ∇– (down).
The CH position changes colour. (See Fig. 12)
The CH number starts counting up or downwards. When a channel is found, it stops. (See Fig. 13)

-c Press OK if you want to store this channel. If not, press Δ+ or ∇– to continue channel searching.

-d Press OK until the cursor appears by the next programme position.

-e Repeat steps 3 to 7 to preset other channels.

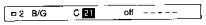

▫2 B/G C 21 off -----

Fig. 8

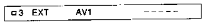

▫3 EXT AV1 -----

Fig. 9

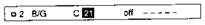

▫2 B/G C 21 off -----

Fig. 10

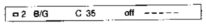

▫2 B/G C 35 off -----

Fig. 11

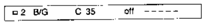

▫2 B/G C 35 off -----

Fig. 12

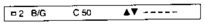
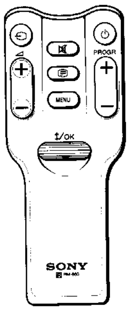
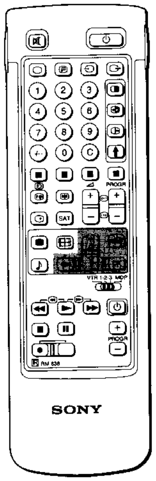

▫2 B/G C 50 ▲▼ -----

Fig. 13



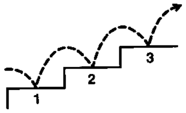
PROGRAMME SORTING



INSTALLATION

For higher programme positions:
The display scrolls automatically.
If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to main menu:
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

Additional Presetting Functions



This section shows you additional presetting functions such as sorting or skipping programme positions, captioning a station name, manual fine-tuning, and using the parental lock.

Before you begin

- Check that the Full Function side of the Remote Commander is visible
- Locate the Menu operation buttons.

Sorting Programme Positions

With this function, you can sort the programme positions to a preferable order.

1 Press MENU to display the main menu.

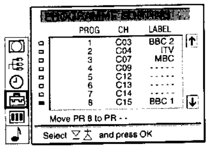
2 Select the symbol 🧰 for »Preset« with Δ+ or ∇– and press OK.
The PRESET menu appears.

3 Select »Programme Sorting« with Δ+ or ∇– and press OK.
The PROGRAMME SORTING menu appears. (See Fig. 14)

4 Using Δ+ or ∇– select the programme position which you want to move to another and press OK.
The colour of the selected position changes. (See Fig. 15)

5 Using Δ+ or ∇– select the programme position to which you want to move the channel of the programme position selected in step 4 and press OK. Now the programme positions have been sorted. (See Fig. 16)

6 Repeat steps 4 and 5 to sort other programme positions.



	PROG	CH	LABEL
▫	1	C03	BBC 2
▫	2	C04	ITV
▫	3	C07	MBC
▫	4	C09	-----
▫	5	C12	-----
▫	6	C13	-----
▫	7	C14	-----
▪	8	C15	BBC 1

Move PR 8 to PR - -

Select ∇Δ and press OK

Fig. 14

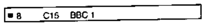
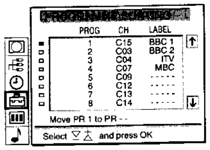

▪ 8 C15 BBC 1

Fig. 15



	PROG	CH	LABEL
▪	1	C15	BBC 1
▫	2	C03	BBC 2
▫	3	C04	ITV
▫	4	C07	MBC
▫	5	C09	-----
▫	6	C12	-----
▫	7	C13	-----
▫	8	C14	-----

Move PR 1 to PR - -

Select ∇Δ and press OK

Fig. 16

How to adjust the Picture Rotation

If due to the earth magnetism the picture »slants«, you can use the function »Picture Rotation« to readjust the picture.

1 Press MENU to display the main menu.

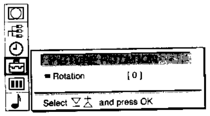
2 Select the symbol 🧰 for »Preset« with Δ+ or ∇– and press OK.
The PRESET menu appears.

3 Select »Installation« with Δ+ or ∇– and press OK.
The INSTALLATION menu appears.

4 Select »Picture Rotation« with Δ+ or ∇– and press OK.
The PICTURE ROTATION menu appears. (See Fig. 17)

5 Press OK. Adjust the picture rotation with Δ+ or ∇– until you have an upright picture. As you press the cursor buttons, the range changes from – 4 to + 4.

6 Press OK to store the adjustment.


▪ Rotation [0]

Select ∇Δ and press OK

Fig. 17

Using »Further Programme Preset«

Using the menu »Further Programme Preset« you can

a) in case of a strong local aerial signal (striped picture) attenuate the signal individually for each programme position (RF attenuator).

b) individually adjust and store the volume level of each channel (Volume offset).

c) in case of a strong sound signal (distorted sound), attenuate the sound signal for each programme position.

d) use the manual fine tuning to obtain a better picture reception, if the picture is distorted. Normally the AFT (automatic fine tuning) is operating.

1 Press MENU to display the main menu.

2 Select the symbol 🖭 for »Preset« with △+ or ▽– and press OK. The PRESET menu appears.

3 Select »Installation« with △+ or ▽– and press OK. The INSTALLATION menu appears.

4 Select »Further Programme Preset« with △+ or ▽– and press OK. The FURTHER PROGRAMME PRESET menu appears (See Fig. 18).

5 Using △+ or ▽– select the desired programme position and press OK once to select a) »ATT« (RF Attenuator), twice to select b) »VOL« (Volume offset), three times to select c) »IN-AMP« (Input Amplifier) or four times to select d) AFT (Automatic Fine Tuning). The selected item changes colour.

To adjust or change:

a) RF attenuator (ATT)

Using △+ or ▽– select »On« for the selected programme position. Press OK to confirm the selection. Repeat step 5 to attenuate other programme positions.

b) Volume offset (VOL)

Using △+ or ▽– you can adjust the volume level for the selected programme position within a range from –7 to +7. Press OK to store the volume level.
Repeat step 5 to set the volume level for other programme positions.

c) IN-AMP (Input amplifier)

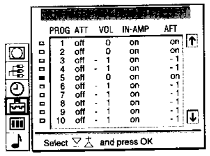
Using △+ or ▽– select »Off« for the selected programme position. Press OK to confirm the selection. Repeat step 5 to switch off the input amplifier for other programme positions.

d) AFT

Using △+ or ▽– you can fine-tune the channel within a range from –15 to +15. Press OK to store the fine-tuned level. Repeat step 5 to fine-tune the other channels.

6 Press MENU to return to the normal TV mode.

To reactivate AFT (Automatic Fine Tuning)
Repeat from the beginning and select »ON« in step 5.



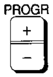
	PROG	ATT	VOL	IN-AMP	AFT
▫	1	off	0	on	on
▫	2	off	0	on	on
▫	3	off	- 1	on	- 1
▫	4	off	- 1	on	- 1
▪	5	off	0	on	on
▫	6	off	- 1	on	- 1
▫	7	off	- 1	on	- 1
▫	8	off	- 1	on	- 1
▫	9	off	- 1	on	- 1
▫	10	off	- 1	on	- 1

Select ▽ △ and press OK

Fig. 18

Skipping Programme Positions

You can skip unused programme positions when selecting programmes with the PROGR +/– buttons. However, the skipped programmes may still be called up when you use the number buttons.



1 Press MENU to display the main menu.

2 Select the symbol 🖭 for »Preset« with △+ or ▽– and press OK. The PRESET menu appears.

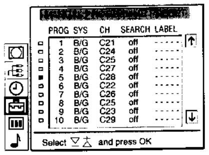
3 Select »Manual Programme Preset« with △+ or ▽– and press OK.
The MANUAL PROGRAMME PRESET menu appears. (See Fig.19)

4 Using △+ or ▽–, select the programme position which you want to skip and press OK.
The »SYS« position changes colour.

5 Press △+ or ▽– until »– – –« appears in the SYSTEM position. (See Fig. 20)

6 Press OK. (See Fig. 21)
When you select programmes using the PROGR +/– buttons, the programme position will be skipped.

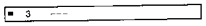
7 Repeat steps 4 to 6 to skip other programme positions.



	PROG	SYS	CH	SEARCH	LABEL
▫	1	B/G	C21	off	- - - - -
▫	2	B/G	C24	off	- - - - -
▫	3	B/G	C25	off	- - - - -
▫	4	B/G	C27	off	- - - - -
▪	5	B/G	C28	off	- - - - -
▫	6	B/G	C22	off	- - - - -
▫	7	B/G	C26	off	- - - - -
▫	8	B/G	C25	off	- - - - -
▫	9	B/G	C23	off	- - - - -
▫	10	B/G	C29	off	- - - - -

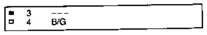
Select ▽ △ and press OK

Fig. 19



▪ 3 – – –

Fig. 20



▪ 3 – – –
▫ 4 B/G

Fig. 21

Captioning a Station Name

Programme names are usually automatically taken from Teletext if available. You can also »name« a channel or an input video source using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. BBC1). Using this function, you can easily identify which channel or video source you are watching.

1 Press MENU to display the main menu.

2 Select the symbol 🖭 for »Preset« with △+ or ▽– and press OK. The PRESET menu appears.

3 Select »Manual Programme Preset« with △+ or ▽– and press OK.
The MANUAL PROGRAMME PRESET menu appears. (See Fig. 22)

4 Using △+ or ▽–, select the programme position you want to caption and press OK repeatedly until the first element of the LABEL position is highlighted.

5 Select a letter or number with △+ or ▽– and press OK.
The next element will be highlighted.
Select other characters in the same way. If you want to leave an element blank, select – and press OK. (See Fig. 23)

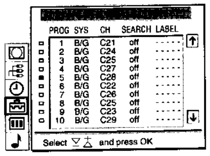
6 After selecting all the characters, press OK repeatedly until the cursor appears by the next programme position (at the left margin). Now the caption you chose is stored. (See Fig. 24)

7 Repeat steps 5 and 6 to caption names for other channels.

If you have made a mistake:
Press ⬅ to go back to the previous position.

To go back to main menu:
Keep pressing ⬅.

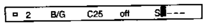
To go back to the normal TV picture:
Press MENU.



	PROG	SYS	CH	SEARCH	LABEL
▫	1	B/G	C21	off	- - - - -
▫	2	B/G	C24	off	- - - - -
▫	3	B/G	C25	off	- - - - -
▫	4	B/G	C27	off	- - - - -
▪	5	B/G	C28	off	- - - - -
▫	6	B/G	C22	off	- - - - -
▫	7	B/G	C26	off	- - - - -
▫	8	B/G	C25	off	- - - - -
▫	9	B/G	C23	off	- - - - -
▫	10	B/G	C29	off	- - - - -

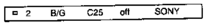
Select ▽ △ and press OK

Fig. 22



▫ 2 B/G C25 off S█- - -

Fig. 23



▫ 2 B/G C25 off SONY

Fig. 24

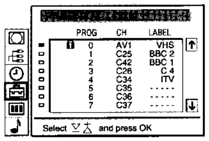
PARENTAL LOCK

Parental Lock

You can prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

1. Press MENU to display the main menu.
2. Select the symbol ▤ for »Preset« with △+ or ▽– and press OK. The PRESET menu appears.
3. Select »Parental Lock« with △+ or ▽– and press OK. The PARENTAL LOCK menu appears. (See Fig. 25)
4. Using △+ or ▽–, select the programme position you want to block and press OK. The symbol 🔒 appears in front of the programme number indicating that this programme is now blocked. (See Fig. 26)
5. Repeat step 4 to block other programme positions.

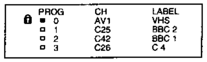
If you try to select a programme that has been blocked:
The message »LOCKED« appears on the blank TV screen.



	PROG	CH	LABEL
■ 🔒	0	AV1	VHS
□	1	C25	BBC 2
□	2	C42	BBC 1
□	3	C26	C 4
□	4	C34	ITV
□	5	C35	-----
□	6	C36	-----
□	7	C37	-----

Select ▽ △ and press OK

Fig. 25



	PROG	CH	LABEL
🔒 ■	0	AV1	VHS
□	1	C25	BBC 2
□	2	C42	BBC 1
□	3	C26	C 4

Fig. 26

Cancelling blocking

1. On the PARENTAL LOCK menu, select the programme position you want to unblock with △+ or ▽–.
2. Press OK. The symbol 🔒 disappears indicating that the blocking has been cancelled.

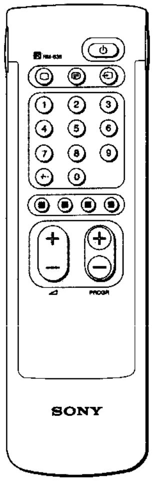
Tuning in a Channel Temporarily

You can tune in a channel temporarily, even when it has not been preset. Use the buttons on the Full-Function side of the Remote Commander.

1. Press C on the Remote Commander. For cable channels, press C twice. The indication »C«'(»S« for cable channels) appears on the screen.
2. Enter the double-digit channel number using the number buttons (e.g. for channel 4, first press 0, then 4). The channel appears. However, the channel will not be stored.

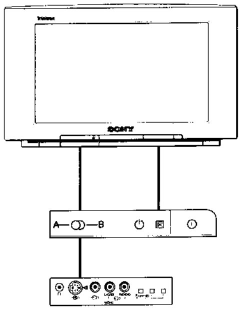
Operating Instructions

Watching the TV



If no picture appears when you depress ⏼ on the TV
and if the standby indicator on the TV is lit, the TV is in standby mode. Press ○ or one of the number buttons to switch it on.

This section explains the basic functions you use while watching TV. Most of the operations can be done using the simple side of the Remote Commander.



Switching the TV on and off

Switching on

Depress ⏼ on the TV.

Switching off temporarily

Press ⏻ on the Remote Commander.
The TV enters standby mode and the standby indicator on the front of the TV lights up.

To switch on again
Press ○, PROGR +/–, or one of the number buttons on the Remote Commander.

Switching off completely

Depress ⏼ on the TV.

Selecting TV Programmes

Press PROGR +/– or the number buttons.

To select a double-digit number

Press -/--, then the number.
For example, if you want to choose 23, press -/--, 2 and 3.

Adjusting the Volume

Press ◢+/–.

Operating the TV Using the Buttons on the TV

- With the buttons on the TV, you can select programmes, adjust the volume, and select video input sources.
  Press P → ◢ → ⇥ button repeatedly until the programme number, ◢ (for volume), or ⇥ (for video input picture) appears.Then adjust with the –/+ buttons.
- Press –/+ buttons to switch on the TV from the standby mode.
- Press –/+ simultaneously to reset picture and sound controls to the factory preset level (RESET function).

For details of the teletext operation, refer to page 56.

For details of the video input picture, refer to page 60.

Watching Teletext or Video Input

Watching teletext

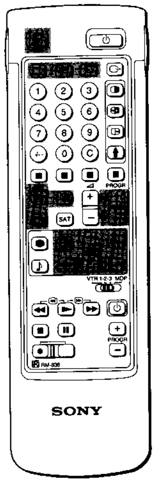
- Press ⊜ to view the teletext.
- Press three number buttons to select a page.
- Press one of the coloured buttons for fastext operation.
- Press ⊕ (PAGE +) or ⊖ (PAGE –) for the next or preceeding page.
- To go back to the normal TV picture, press ◯.

Watching a video input picture

Press ⊖ repeatedly until the desired video input appears. To go back to the normal TV picture, press ◯.

More Convenient Functions

Use the Full-Function side of the Remote Commander.



Displaying the on screen indications

- Press ⊕ once to display all the indications. They will disappear after some seconds.
- Press ⊕ twice to have the programme number and label stay on screen. Press twice again to make indications disappear.

Muting the sound.

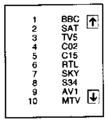
Press 🔇.
To resume normal sound, press 🔇 again.

Displaying the time

Press ◎. This function is available only when teletext is broadcast.
To make the time display disappear, press ◎ again.

Displaying the Programme Table

Press OK. A Programme Table will be displayed on the left side of the TV screen (See Fig.27).



1	BBC
2	SAT
3	TV5
4	C02
5	C15
6	RTL
7	SKY
8	S34
9	AV1
10	MTV

Fig. 27

Selecting TV programmes

Press PROGR +/– or select the desired programme position using Δ+ or ∇– and press OK.

To make the Programme Table disappear, press MENU.

Freezing the Picture

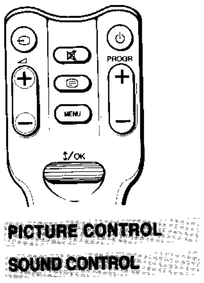
When watching the TV you have the possibility to »freeze« the picture. Press ⊞. Press the button again to return to the normal TV picture.

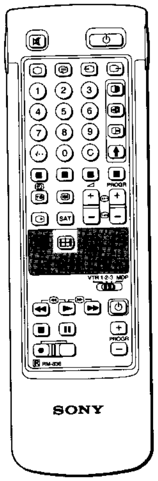
Changing the Screen format

Press ⊟ repeatedly to change the Screen mode as follows:

4:3 (4:3 picture)
➡ Smart (imitation of 16:9 for 4:3 broadcast)
➡ Zoom (imitation of 16:9 for movies broadcast in cinemascopic format)
or
➡ PALplus (for PALplus broadcast)
➡ Wide (for 16:9 broadcast).

See also page 54 for more information.





If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to the main menu:
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

- Hall Surround and Dolby Pro Logic are not available via headphones.

For setting the Balance
See page 51
»Level settings«

Note on LINE OUT:
The audio level and the dual sound mode output from the ⊖ jack on the rear correspond to the HEADPHONES VOLUME and DUAL SOUND settings.

When watching a video input source with stereo sound:
You can select DUAL SOUND to change the sound.

Adjusting and Setting the TV Using the Menu

Adjusting the Picture and Sound

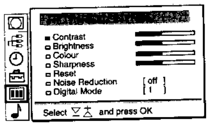
Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste. In addition, you can reduce the picture noise. You can also select dual sound (bilingual) programmes when available, adjust the sound for listening with the headphones (♫). Also you have the possibility to adjust the sound to your individual taste using the Graphic Equalizer and special Sound effects.

1 Press ● (for picture) or ♪ (for sound) on the Remote Commander.
or
Press MENU and select the symbol ▤ for Picture Control or ♪ Sound Control, then press OK.
The PICTURE CONTROL or SOUND CONTROL menu appears. (See Fig. 28 or Fig. 29)

2 Using Δ+ or ∇–, select the item you want to adjust and press OK.The selected item changes colour. (See Fig. 30)

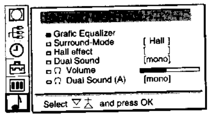
3 Adjust the setting with Δ+ or ∇ – and press OK.
The cursor appears beside the next item (at the left margin). (See Fig. 31)
For the effect of each control, see the table below.

4 Repeat steps 2 and 3 to adjust other items.



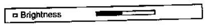
■ Contrast
▫ Brightness
▫ Colour
▫ Sharpness
▫ Reset
▫ Noise Reduction [off]
▫ Digital Mode [1]
Select ∇ Δ and press OK

Fig. 28



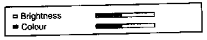
■ Grafic Equalizer
▫ Surround-Mode [Hall]
▫ Hall effect [ ]
▫ Dual Sound [mono]
▫ ♫ Volume
▫ ♫ Dual Sound (A) [mono]
Select ∇ Δ and press OK

Fig. 29



▫ Brightness

Fig. 30



▫ Brightness
■ Colour

Fig. 31

Effect of each control

PICTURE CONTROL	Effect
Contrast	Less ——I—— More
Brightness	Darker ——I—— Brighter
Colour	Less ——I—— More
Hue (only for NTSC)	Greenish ——I—— Reddish
Sharpness	Softer ——I—— Sharper
Reset	Resets picture to the factory preset levels.
Noise Reduction	Off: Normal on: Reduction of picture noise in case of weak signals
Digital Mode	1: Normal 2: LFR (Line Flicker Reduction) off

SOUND CONTROL	Effect
Graphic Equalizer	(See page 52 for more information)
Surround Mode	Off: Normal ➡ Dolby ➡ Hall
Hall Effect (only if »Hall« is on)	Choice between different hall effects Room ➡ Dome ➡ Arena
Dual Sound	A : left channel B : right channel Stereo Mono The selected mode of the A-◯-B indicator on the TV lights up.
Headphones:	
♫ Volume	Less —I— More
♫ Dual Sound	A: channel 1 ➡ B: channel 2 ➡ PAP (if PAP is switched on you can select the PAP sound for the headphones) Stereo ➡ Mono

Notes:
- Make sure to connect your own or the supplied speakers to the set. (See page 39).
- Select »On« for Dolby Pro Logic when receiving Dolby Surround encoded programmes.
- This adjustment is necessary only once when you install the TV and the speakers or change their positions.

Dolby Pro Logic Set Up

With Dolby Pro Logic Surround you can experience »three dimensional« sound when receiving Dolby Surround encoded programmes.
This menu enables you to adapt the Dolby Pro Logic Surround features to your individual requirements.

Adjusting the sound level of the speakers

Dolby Pro Logic uses 4 sound channels to supply 5 speakers:
Left and Right: Left and right TV speakers
Centre: Centre speaker for dialogues
Surround: Surround speakers for surround sound effect
Using »Level Settings« a noise generator enables you to adjust the sound levels of the speakers to your individual listening position. From your listening position all sound levels should be the same.

1 Press MENU, select the symbol 🧰 on the screen for »Preset« and press OK. Then select »Installation« and »Dolby Pro Logic Set Up« using Δ+ or ∇– and press OK. The DOLBY PRO LOGIC SET UP menu appears. (See Fig. 32)

2 Press OK. The cursor moves to L (sound level of the left speaker) (See Fig. 33) and you hear a test tone from the left speaker.

3

a) To change the level:
Press OK and adjust the highlighted bar by pressing Δ+ or ∇– repeatedly. Press OK to confirm the adjustment.

or

b) To go on the next bar:
Press Δ+ or ∇– to select Centre, Right or Surround. Adjust using step 3a).

4 Repeat steps 3a and b to adjust all sound levels.

5 Press ⬅ to exit »Level Settings« and Menu to return to the normal TV screen.

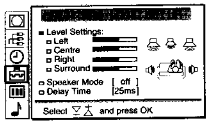

■ Level Settings:
□ Left
□ Centre
□ Right
□ Surround
□ Speaker Mode [off]
□ Delay Time [25ms]
Select ∇ Δ and press OK

Fig. 32

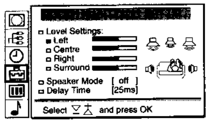

□ Level Settings:
■ Left
□ Centre
□ Right
□ Surround
□ Speaker Mode [off]
□ Delay Time [25ms]
Select ∇ Δ and press OK

Fig. 33

Setting Speaker Mode and Delay Time

1 Using Δ+ or ∇– select »Dolby Pro Logic Set Up« in the Installation menu and press OK.

2 Press ∇– to select »Speaker Mode« and press OK.
Using Δ+ or ∇– select
Normal: if all speakers are activated
Phantom: if the centre speaker is not used
3 stereo: if the surround speakers are not used
Press OK to confirm your selection.

3 Press ∇– to select »Delay Time« and press OK. You can select a time delay for the sound of the surround speakers which depends on your room size (e.g. 20ms for standard rooms, 30 ms for small rooms)
15 ms → 20 ms → 25 ms → 30 ms

Press OK to confirm your selection.

4 Press MENU to return to the normal TV screen.

Graphic Equalizer

Note: The modifications made in »USER« mode will be stored. All other settings are reset to factory-set level when you change to another mode.

Using this function you can individually adjust the sound by cutting and boosting selected frequencies. You can also select between the following modes:

Flat → Pop → Rock → Jazz → Vocal → User

1 Select »Sound Control« in the main menu, then select »Graphic Equalizer« using Δ+ or ∇– and press OK.
The GRAPHIC EQUALIZER menu appears (See Fig. 34).

2 Press OK. The colour of »Mode« changes. Select the desired mode with Δ+ or ∇– and press OK.

3 If you want to modify a mode, select the desired bar of a frequency band using Δ+ or ∇– and press OK. The selected frequency changes colour. Using Δ+ or ∇– adjust the level of frequency and press OK. In this way you can adjust all 5 graphic bars.

4 Press MENU to return to the normal TV mode.

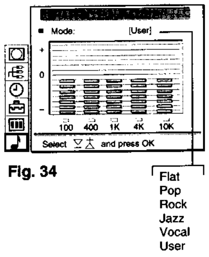

■ Mode: [User]
Select ∇ Δ and press OK

Fig. 34

Preset Dolby Pro Logic

To enjoy programmes encoded in Dolby Surround sound, switch on »Dolby Pro Logic« in the sound menu.

1 Press ♪ on the Remote Commander.
The SOUND CONTROL menu appears.

2 Using Δ+ or ∇– select »Surround Mode« and press OK.

3 Using Δ+ or ∇– select »Dolby« and press OK.
After the end of the broadcast make sure to return the setting to »OFF«.

Using the Sleep Timer

TIMER

To switch off the timer:
Select »OFF« in step 3.

To check the remaining time:
Press ⊕.

To go back to the normal TV picture:
Press MENU.

You can select a time period after which the TV automatically switches into standby mode.

1 Using Δ+ or ∇– select the symbol 🕒 for »Timer« and press OK. The TIMER menu appears (see Fig. 35).

2 Press OK.
The time period option changes colour.

3 Select the time period with Δ+ or ∇–.
The time period (in minutes) changes as follows:
10→20→30→40→50→60→70→80→90

4 After selecting the time period, press OK.
The cursor moves back to the left margin and the timer starts counting.
One minute before the TV switches into standby mode, a message is displayed on the screen.

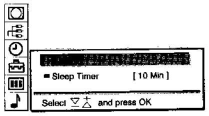
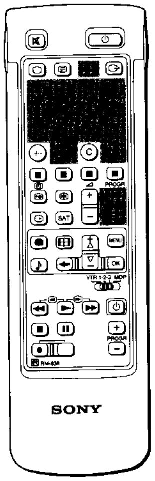

■ Sleep Timer [10 Min]
Select ∇ Δ and press OK

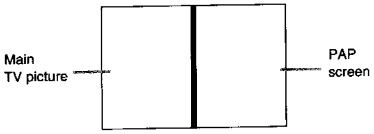
Fig. 35

PAP (Picture and Picture)



Notes:
- RGB input source cannot be displayed in PAP.
- PAP is not available in the Zoom mode or the PALplus mode.
- The sound of the right screen is only available via the headphones.
- The picture quality of the TV screen and PAP may differ.

With this function you can display two screens at the same time. In this way you can watch two TV programmes at the same time. Also you can watch or monitor the video output from any connected equipment (for example from a VCR) while watching TV or vice versa. For information about connection of other equipment, refer to page 59.



Switching PAP on and off

Press ◑ to display the screens in 8:9 format.
Press ◑ twice to display the screens in 4:3 format.
The PAP screen will be displayed next to the main TV screen.
The PAP screen will come from the source chosen when the TV was last used.

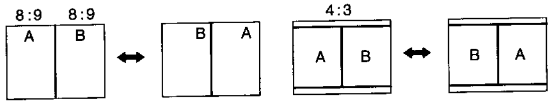
To switch PAP off
Press ◑ repeatedly.

Selecting a PAP source

Press ⬆.
The symbol ⬆ will be displayed at the bottom, left-hand corner of the screen.
Press PROGR +/–, the number buttons or ⇥ to select the desired source for the PAP screen.

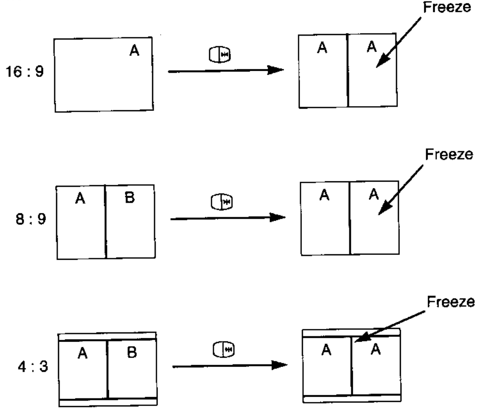
Swapping screens

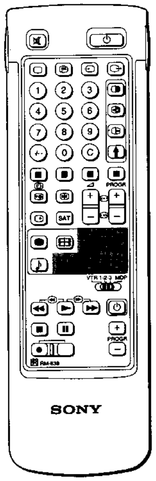
Press ⊕.
The main screen will switch the picture with the PAP screen.



Freezing the picture

You have the possibility to »freeze« the picture of the PAP screen. Press ⧉ once to freeze and twice to return to the normal screen.





Operating Screen Mode/PAP using the Menu

Using the Screen Mode menu you have the possibility to change the aspect ratio for the TV display for wide screen effects, operate the PAP Mode, preset Auto Pal plus or reproduce the main picture image by image (Strobe function).

1 Press MENU to display the main menu.

2 Select the symbol ▣ for »Screen Mode« with Δ+ or ∇– and press OK. The SCREEN MODE menu appears (See Fig. 36).

You have the choice among the following modes:

4:3:	for normal ratio 4:3 (See Fig. 37).
Smart:	imitation of wide screen effect (16:9) for 4:3 broadcasts (See Fig. 38).
Zoom:	imitation of wide screen effect (16:9) for movies broadcast in cinemascopic format (See Fig. 39).
	or
PAL plus:	for PAL plus broadcasts.
Wide:	for 16:9 broadcasts (See Fig. 40).

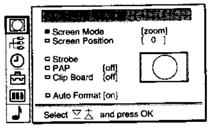
a) **Changing the Screen position (only for Zoom mode)**
When using the Zoom mode part of the picture at the top and bottom will be cut off. With the help of the function »Screen position« you can move the screen up- or downwards in order to see the cut-off part of the screen (e.g. to read the subtitles).

Using Δ+ or ∇– select »Screen position« and press OK. The selected item changes colour. Using Δ+ or ∇– adjust the screen position and press OK.

b) **Strobe Mode**
Using Δ+ or ∇– select »Strobe« and press OK. Now the TV picture is displayed image by image, creating a slow motion effect (See Fig. 41). Using Δ+ or ∇– select the speed of the motion (3 different speeds are available). Press OK to return to the normal TV mode.

c) **Switching PAP on and off**
Using Δ+ or ∇– select »PAP« and press OK. Using Δ+ or ∇– select »1« to display the PAP screen in 8:9 format, »2« for 4:3 format and »OFF« to switch it off and press OK.

d) **Freezing the PAP screen**
Using Δ+ or ∇– select »Clip Board« and press OK.
Using Δ+ or ∇– select »On« to freeze the PAP screen and »Off« to restore the normal picture.



■ Screen Mode [zoom]
□ Screen Position [0]

□ Strobe
□ PAP [off]
□ Clip Board [off]

□ Auto Format [on]

Select ∇ Δ and press OK

Fig. 36

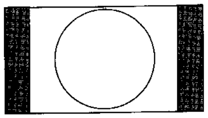


Fig. 37 ⇩

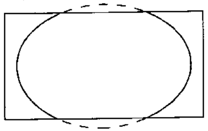


Fig. 38

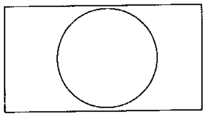


Fig. 39

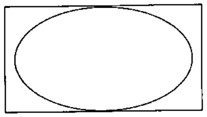


Fig. 40

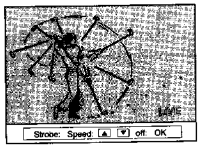
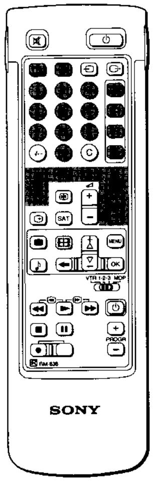


Fig. 41

Teletext



Notes:

- Teletext errors may occur if the broadcasting signals are weak.

TV stations broadcast an information service called Teletext via the TV channels. Teletext service allows you to receive various information pages such as weather reports or news at any time you want. For advanced teletext operation, use the buttons on the Full-Function side of the Remote Commander.

Direct Access Functions

Switching Teletext on and off

1 Select the TV channel which carries the teletext broadcast you want to watch.

2 Press ⊜ to switch on teletext.
A teletext page will be displayed (usually the index page).If there is no teletext broadcast, »No text available« is displayed on the information line at the top of the screen.

To switch teletext off
Press ▭.

Selecting a teletext page

With direct page selection
Use the number buttons to input the three digits of the chosen page number.
If you have made a mistake, type in any three digits. Then re-enter the correct page number.

With page-catching

1 Select a teletext page with a page overview (e.g. index page).

2 Press OK. Using Δ+ or ∇–, select the desired page. »Page Catching« will be displayed on the information line. Press OK. The requested page will appear in a few seconds.

Press ⊜ to resume normal teletext reception.

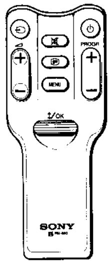
Accessing the next or preceding page
Press ⏭ (PAGE +) or ⏮ (PAGE –).
The next or preceding page appears.

Superimposing the teletext display on the TV programme

- Press ⊜ once in teletext mode or twice in TV mode.
- Press ⊜ again to resume normal teletext reception.

Preventing a teletext page from being updated

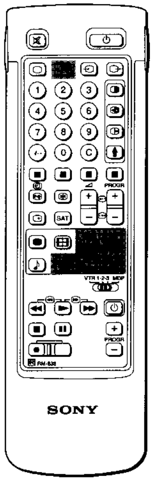
- Press ⊞ (HOLD). The HOLD symbol »⊞« is displayed on the information line.
- Press ⊜ to resume normal teletext reception.



Note:
Fastext operation is only possible, if the TV station broadcasts Fastext signals.

Using Fastext

With Fastext you can access pages with one key stroke.When a Fastext page is broadcast, a colour-coded menu will appear at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue buttons on the Remote Commander.
Press the corresponding coloured button on the Remote Commander which corresponds to the colour-coded menu. The page will be displayed after some seconds.



Note:
Some of the features may not be available depending on the Teletext service.

Using the Teletext Menu

This TV is provided with a menu-guided teletext system. When teletext is switched on, you can use the menu buttons to operate the teletext menu. Select the teletext menu functions in the following way:

1 Press MENU. The menu will be superimposed on the teletext display. (See Fig. 42).

2 Using Δ+ or ∇–, select the teletext function you want and press OK. (See Fig. 43).

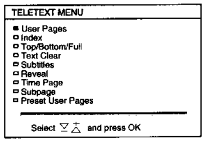


Fig. 42

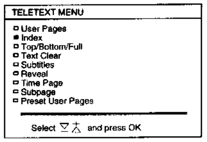


Fig. 43

USER PAGES/PRESET USER PAGES

See page 58 for information about presetting and operating the user pages.

INDEX

The index will give you an overview of the contents of the teletext and the page numbers.

TOP/BOTTOM/FULL

For convenient reading of a teletext page, you can enlarge the teletext display with the ability to scroll up and down the screen. After having selected the function, an information line Top/Bottom/Full will be displayed. (See Fig. 44).
Press Δ+ for »Top« to enlarge the upper half. For »Bottom« keep pressing ∇–, to enlarge the lower half. Press OK for »Full« to resume the normal size.
Press ⊜ to resume normal teletext reception.

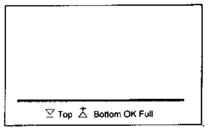


Fig. 44

TEXT CLEAR

After having selected the function, you can watch a TV programme while waiting for a requested teletext page to be captured (The symbol changes colour) (See Fig. 45).
Press ⊜ to view the requested page.

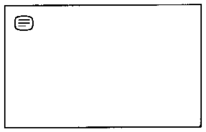


Fig. 45

SUBTITLES

Your teletext service will inform you if a TV programme is subtitled. After having selected the function the subtitles will be displayed.

REVEAL

Sometimes pages contain concealed information, such as answers to a quiz. The reveal option lets you disclose the information. After having selected the function, an information line »REVEAL ON/OFF« will be displayed. (See Fig. 46).

Using Δ+ or ∇–, select ON to reveal the information or OFF to conceal it again.
Press ⊜ to resume normal teletext reception.

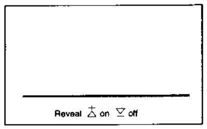


Fig. 46

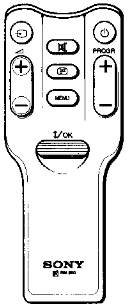
TIME PAGE

Your teletext service will inform you, if a time coded page is available. You may have a page (e.g. an alarm page) displayed at a certain time.

1 Press OK. An information window will be displayed at the bottom of the page. Using Δ+ or ∇– select ON and press OK.

2 To select the desired page, enter the three digits of the page number (e. g. 301) using the number buttons.

3 To select the time, enter four digits for the desired time (e.g. 1800) using the number buttons. Press MENU. The selected time is displayed at the top in the left-hand corner.
At the requested time, the page will be displayed.
Press ⊜ to resume normal teletext mode.



To cancel the request:
Select »OFF« for the TIME PAGE setting.

To cancel the request:
Select »Subpage« and press OK.

SUBPAGE

You may want to select a particular teletext page from several subpages which are rotated automatically. After having selected the function, an information line will be displayed.

To select the desired subpage, enter four digits using PROGR+/– or the number buttons. (e.g. enter 0002 for the second page of a sequence).

User Page Bank System

You can store up to 30 pages in the »Teletext page bank system«. In this way you have quick access to the pages you watch frequently.

Storing pages

There are 5 »banks« (A to E) for 5 teletext stations. In each bank you can store 6 preferred pages (P1 to P6).

If two broadcasting stations use the same Teletext:
You can preset one bank to 2 different programme positions.

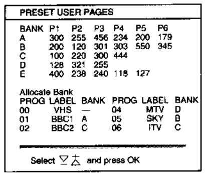
1 Press ⊜ (if Teletext is not on already) and MENU to show the TELETEXT MENU display.
2 Select PRESET USER PAGES with Δ+ or ∇– and press OK.
3 Select the desired bank with Δ+ or ∇– and press OK. The cursor will go to the first position (P1) of the preferred pages.
4 Input the three digits of your first preferred page with the number buttons and press OK.
The cursor will go to the second position.
5 Repeat step 4 for the other 5 page numbers you want to preset. If you do not want to preset all 6 page numbers available, press OK without inserting any number. After having finished the presetting press OK repeatedly until the cursor appears besides the next bank at the left margin.
6 Select Allocate Bank with Δ+ or ∇– and press OK.
7 Select the programme position for which you have preset pages with Δ+ or ∇– and press OK. (See Fig. 47)
8 Select the desired bank with Δ+ or ∇– (Banks A to E are available) and press OK.
9 Repeat steps 3 to 8 for the other 4 banks available.

Displaying User Pages

1 Select MENU.
2 Select User Pages with Δ+ or ∇– and press OK.
A table of the stored preferred pages will be displayed.
(See Fig. 48)
3 Select the desired page with Δ+ or ∇– and press OK. The page will be displayed after some seconds.

or

You can use the coloured buttons on the Remote Commander to have quick access to the first four User pages. Page 1 corresponds to the red button, P 2 to the green one, P 3 to the yellow one and P 4 to the blue button.
To select the desired page press the respective coloured button while you are in TV mode. Now the Page number of this teletext page will appear in white at the top in the left-handed corner of the TV screen. When the page number changes colour, the page is available. Press the coloured button again to display the page.



PRESET USER PAGES

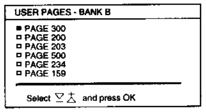
BANK	P1	P2	P3	P4	P5	P6
A	300	255	456	234	200	179
B	200	120	301	303	550	345
C	100	220	300	444		
D	128	321	255			
E	400	238	240	118	127	

Allocate Bank

PROG	LABEL	BANK	PROG	LABEL	BANK
00	VHS	—	04	MTV	D
01	BBC1	A	05	SKY	B
02	BBC2	C	06	ITV	C

Select ∇ Δ and press OK

Fig. 47



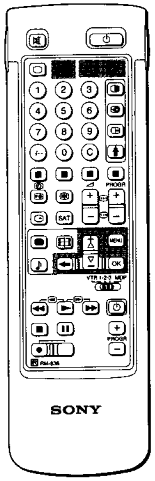
USER PAGES - BANK B

■ PAGE 300
□ PAGE 200
□ PAGE 203
□ PAGE 500
□ PAGE 234
□ PAGE 159

Select ∇ Δ and press OK

Fig. 48

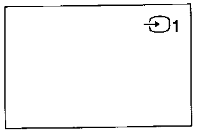
Selecting input with PROGR +/– or number buttons:
You can preset video input sources to the programme positions so that you can select them with PROGR +/– or number buttons.
For details, see "Preset channels manually" on page 41.



Selecting input and output

This section explains how to view the video input picture (of the video source connected to your TV), and how to select the output signal using direct access buttons or the menu system.

Selecting input



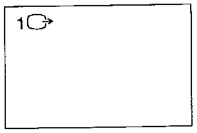
Press ⇥ repeatedly to select the input source.
The symbol of the selected input source will appear.

To go back to the normal TV picture
Press ▭.

Input modes

Symbol	Input signal
⇥ 1	Audio/video input through the ⇥1 connector
⇥	RGB input through the ⇥1 connector
⇥ 2	Audio/video input through the ↦2/⇥Ⓢ2 connector
⇥Ⓢ 2	S video input through the ↦2/⇥Ⓢ2 or ⇥Ⓢ2 connector
⇥ 3	Audio/video input through ⇥3 and ⇥3 connectors at the front
⇥Ⓢ 3	S video input through the ⇥Ⓢ3 connectors (4-pin connector) at the front
⇥ 4	Audio/video input through the ↦4/⇥Ⓢ4 connector
⇥Ⓢ 4	S video input through the ↦4/⇥Ⓢ4 or ⇥Ⓢ4 connector (4-pin connector)

Selecting the output



The ↦2/⇥Ⓢ2 connector outputs the source input from the other connectors.

Press ↦ repeatedly to select the output.
The symbol of the selected output source appears.

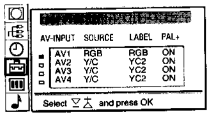
Output modes

Symbol	↦2/⇥Ⓢ2 connector outputs
1 ↦	The audio/video signal from the ⇥1 connector
2 ↦	The audio/video signal from the ↦2/⇥Ⓢ2 connector
2 Ⓢ↦	The audio/video signal from the ↦2/⇥Ⓢ connector
3 ↦	The audio/video signal from the ⇥3, ⇥3 connectors
3 Ⓢ↦	The audio/video signal from the ⇥Ⓢ3, ⇥3 connectors
4 ↦	The audio/video signal from the ↦4/⇥Ⓢ4 connector
4 Ⓢ↦	The audio/video signal from the ↦4/⇥Ⓢ4 connector
TV↦	The audio/video signal from the ⊤ aerial terminal

Using AV Preset

Using this function you can preset the desired input source (e.g. ⇥1, RGB signal) to the respective AV input (AV 1⇥). In this way a connected VTR will automatically switch to the RGB signal.

1 Select the symbol ⊟ for »Preset« with Δ+ or ∇– and press OK.
2 Select first »Installation«, then »AV Preset« with Δ+ or ∇– and press OK.
The AV PRESET menu appears (See Fig. 49).
3 Select the desired AV input with Δ+ or ∇– and press OK.



	AV-INPUT	SOURCE	LABEL	PAL+
■	AV1	RGB	RGB	ON
□	AV2	Y/C	YC2	ON
□	AV3	Y/C	YC2	ON
□	AV4	Y/C	YC2	ON

Select ∇ Δ and press OK

Fig. 49

4 Select the desired source with △+ or ▽– and press OK.
For the respective AV inputs you have the following possibilities:

AV 1	RGB or AV	AV 3	YC3 or AV
AV 2	YC2 or AV	AV 4	YC or AV

5 If you want to name the AV input select »Label« using △+ or ▽– and press OK. Select a letter or a number with △+ or ▽– and press OK. The next element will be highlighted. Select other characters in the same way. If you want to leave an element blank, select – and press OK.
After having selected all the characters, press OK repeatedly until the cursor appears by the next AV input at the left margin.

6 If you want to preset PAL plus selection for a AV input, select PAL + with △+ or ▽– and press OK.
Using △+ or ▽– select »On« if PAL plus should be selected automatically, or »Off« if not. Press OK to confirm the selection.

7 Repeat steps 3 to 6 for the other AV inputs.

Checking and selecting the input and output sources using the menu

You can display the menu to see which input sources are selected for the TV screen and PAP screen, and which output source is selected. You can also select them on the menu display.

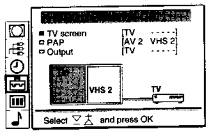
1 Select the symbol ⊶ for »Video Connection« with △+ or ▽– and press OK. The VIDEO CONNECTION menu appears. (See Fig. 50)
You can see which source is selected for the TV and PAP input, and for the output. If you want to select the input and output on this menu, go on to the next step.

2 Select TV Screen (input source for the TV screen), PAP(input source for the PAP screen), or output (output source) with △+ or ▽– and press OK. One of the source items changes colour.

3 Select the desired source with △+ or ▽–.
For details about each source, see the table on page 60.

4 Press OK.
The selected source is confirmed, and the cursor appears.

5 Repeat steps 2 to 4 to select the source for other inputs or outputs.



■ TV screen [TV -----]
▫ PAP [AV 2 VHS 2]
▫ Output [TV -----]

Fig. 50

Remote Control of Other Sony Equipment

You can use the TV Remote Commander to control other Sony remote- controlled video equipment. The buttons for video operation have been factory-set to control most of Sony video equipment, such as: Beta, 8mm or VHS VCRs or video disc players.

Tuning the Remote Commander to the equipment

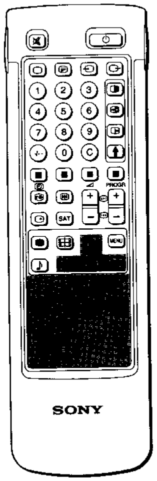
1 Set the VTR 1/2/3 MDP selector according to the equipment you want to control:

VTR 1: Beta VCR
VTR 2: 8mm VCR
VTR 3: VHS VCR
MDP: Video disc player

2 Use the buttons indicated in the illustration to operate the additional equipment.

If your video equipment is furnished with a COMMAND MODE selector: set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander.

If the equipment does not have a certain function, the corresponding button on the Remote Commander will not operate.



When recording
When you use the ● (record) button, make sure to press this button and the one to the right of it simultaneously.

For Your Information

Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press ⓘ on the TV. (If ⏻ indicator is on, press ▢ or a programme number on the Remote Commander.) • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds and then turn it on again using ⓘ.
Poor or no picture (screen is dark), but good sound	• Press ● to enter the PICTURE CONTROL menu and adjust »Brightness«, »Contrast« and »Colour«.
Poor picture quality when watching an RGB video source	• Press ⊕ repeatedly to select ⊕.
Poor picture quality of PAP screen	• Press ⊕.
Good picture but poor or no sound	• Press ◿ +. • If 🔇 is displayed on the screen, press 🔇. • Check the connections of the loudspeakers.
No colour for colour programmes	• Press ● to enter the PICTURE CONTROL menu, select RESET, then press OK.
Remote Commander does not function.	• Replace batteries.

If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

Auto PAL plus

PAL plus is a new broadcasting system with the following features:

- Backward compatibility to the PAL standard
- Broadcasting in 16:9 format
- Improved video signal quality (The resolution is 576 lines against 432 lines in conventional 16:9 programmes)

If you preset AUTO PAL plus to ON and the PAL plus signal is being transmitted, the screen mode automatically changes from any mode to the PAL plus mode (See page 52). When the PAL plus programme is finished, the screen mode automatically returns to the previous mode.

1 Press MENU to display the main menu.

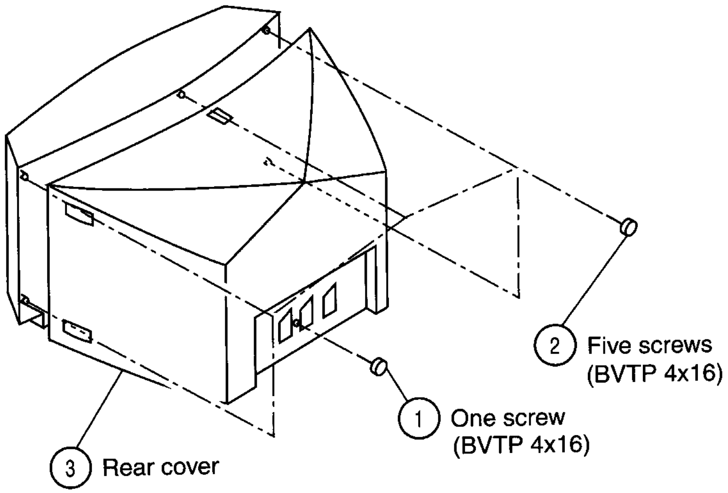
2 Select the symbol ▢ for »Screen Mode« with △+ or ▽– and press OK. The SCREEN MODE menu appears.

3 Select »Auto Format« with △+ or ▽– and press OK.

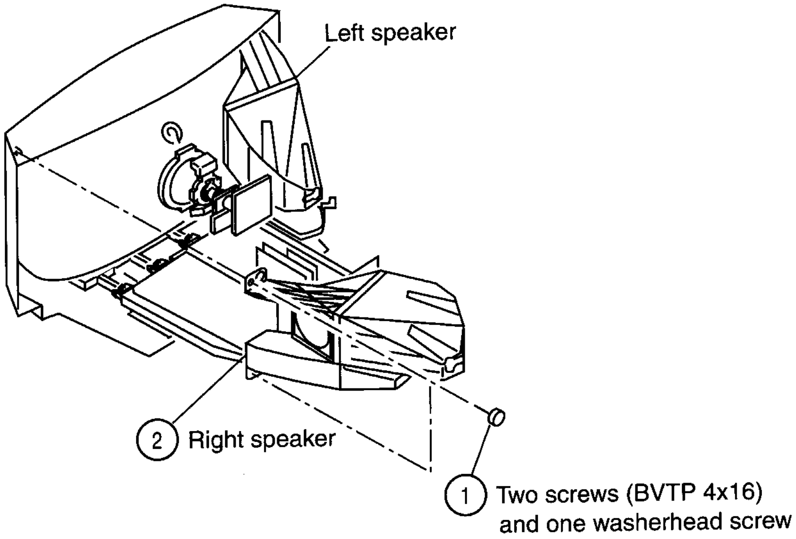
4 Select ON or OFF with △+ or ▽– and press OK.

SECTION 2
DISASSEMBLY

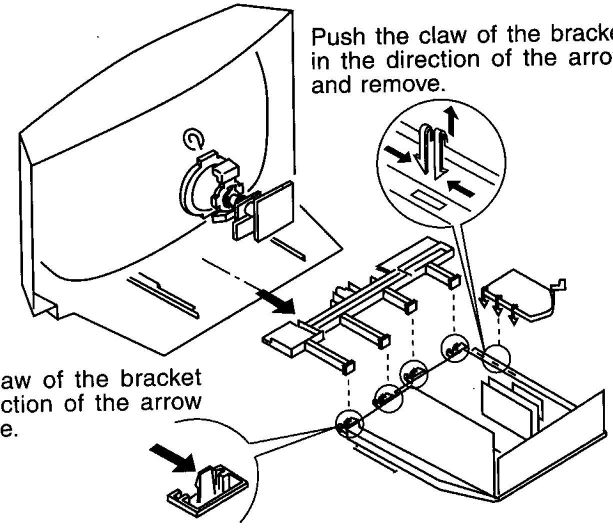
2-1. REAR COVER REMOVAL


② Five screws
(BVTP 4x16)
① One screw
(BVTP 4x16)
③ Rear cover

2-2. SPEAKER REMOVAL


Left speaker
② Right speaker
① Two screws (BVTP 4x16)
and one washerhead screw

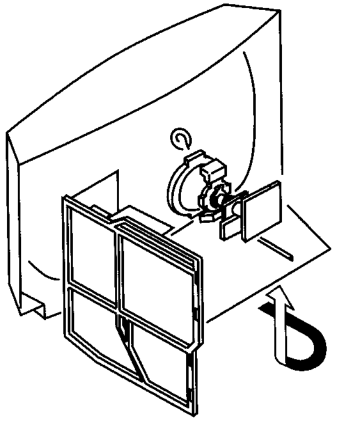
2-3. CHASSIS ASSY, H AND T BRACKET REMOVAL



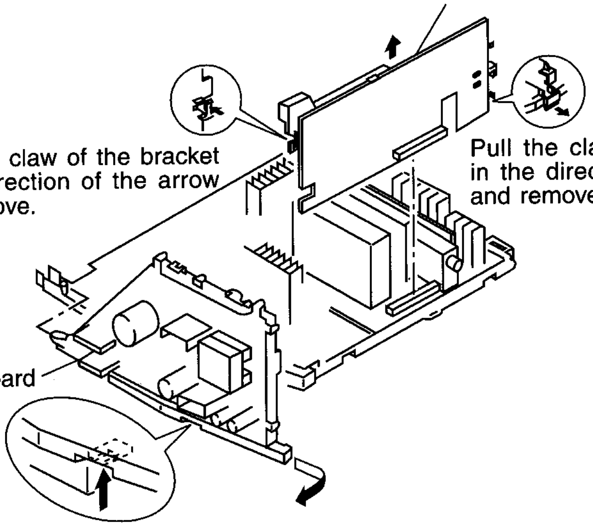
Push the claw of the bracket in the direction of the arrow and remove.

Pull the claw of the bracket in the direction of the arrow and remove.

2-4. SERVICE POSITION



2-5. G AND J BOARD REMOVAL

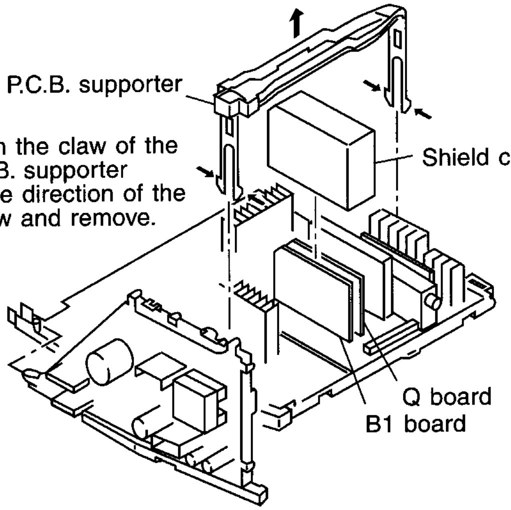

J board
G board

Push the claw of the bracket in the direction of the arrow and remove.

Pull the claw of the bracket in the direction of the arrow and remove.

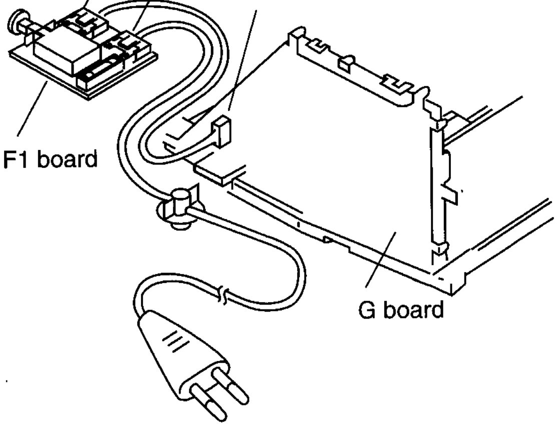
Push the claw of the bracket in the direction of the arrow and remove.

2-6. B1 AND Q BOARD REMOVAL

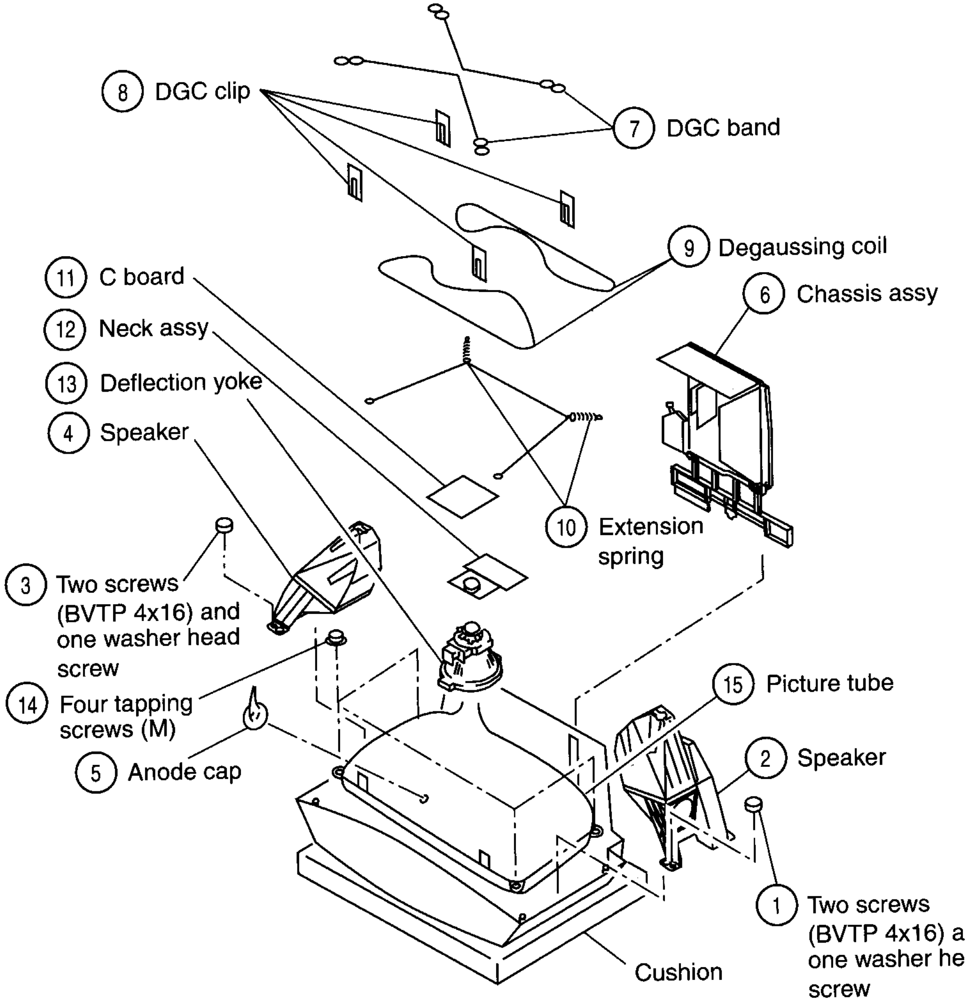

P.C.B. supporter
Shield case
Q board
B1 board

Push the claw of the P.C.B. supporter in the direction of the arrow and remove.

2-7. WIRE DRESSING


CN0622
CN0007
CN0722
F1 board
G board

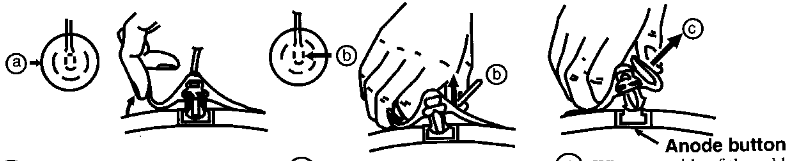
2-8. PICTURE TUBE REMOVAL


⑧ DGC clip
⑦ DGC band
⑨ Degaussing coil
⑥ Chassis assy
⑪ C board
⑫ Neck assy
⑬ Deflection yoke
④ Speaker
⑩ Extension spring
③ Two screws (BVTP 4x16) and one washer head screw
⑭ Four tapping screws (M)
⑤ Anode cap
⑮ Picture tube
② Speaker
① Two screws (BVTP 4x16) and one washer head screw
Cushion

• REMOVAL OF ANODE-CAP

Note : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

• REMOVING PROCEDURES.

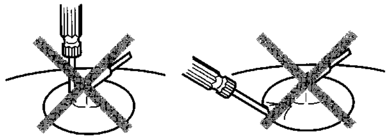

ⓐ
ⓑ
ⓑ
ⓒ
Anode button

① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

• HOW TO HANDLE AN ANODE-CAP



① Don't damage the surface of anode-cap with sharp shaped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built into the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or damage the rubber.

SECTION 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustment with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches as follows.

Contrast .... normal
Brightness .... normal

- Carry out the following adjustments in this order:

3-1. Beam landing
3-2. Convergence
3-3. Focus
3-4. White balance

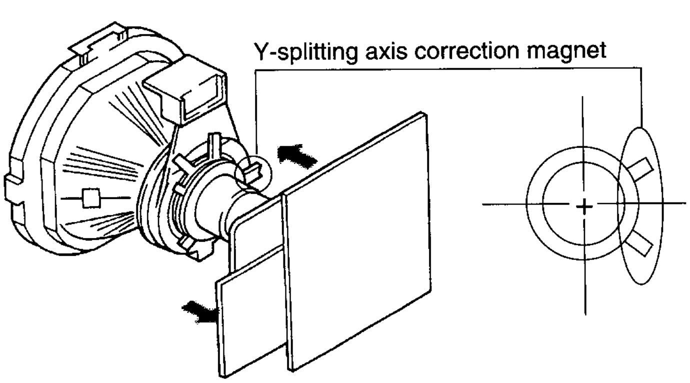
Note: Testing equipment required.
1. Colour bar/pattern generator
2. Degausser
3. Vector scope

3-1. BEAM LANDING

Preparation:
1. In order to reduce the influence of geomagnetism on the set's picture tube face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

(1) Adjustment of Correction Magnet for Y-Splitting Axis

1. Input a crosshatch signal from the pattern generator.
2. Picture control is minimum and brightness control is still normal.
3. Position the neck assy as shown in Fig. 3-2.
4. Move the deflection yoke forward to touch the CRT.
5. Adjust the upper pin and the lower pin symmetrically by opening or closing the Y-splitting axis correction magnets on the neck assy.
6. Return the deflection yoke to its original position.



(2) Landing

Note: Before carrying out the following adjustments adjust the magnets as indicated below (See Fig.3-3).
1. Input an all-white signal from the pattern generator. Maximize the picture setting and adjust the brightness setting.
2. Rough-adjust the focus and horizontal convergence.
3. Loosen the deflection yoke screws, align the purity adjustment knob to the central position. (See Fig. 3-1)
4. Switch from the all-white pattern to an all-green pattern.
5. Move the deflection yoke backwards and adjust with the purity magnet so that the green is at the center and it aligns symmetrically. (See Fig. 3-4)
6. Move the deflection yoke forward and adjust so that entire screen becomes green.
7. Switch the raster signal to red, then to blue and verify the landing condition.
8. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screw.
9. If the beam does not land correctly in all the corners, use magnets to correct it. (See Fig. 3-5)

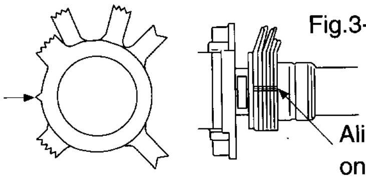


Fig.3-3

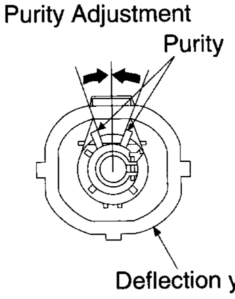
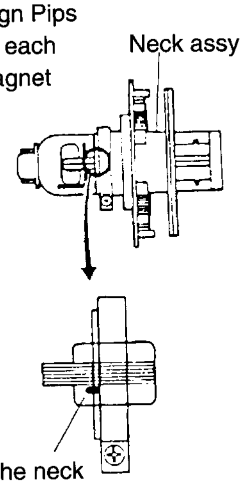


Fig.3-1



Align the bottom edge of the neck assy with the G3 hole center.

Fig.3-2

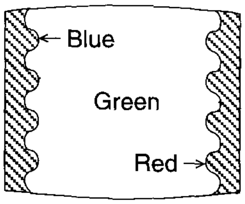

Blue
Green
Red

Fig.3-4

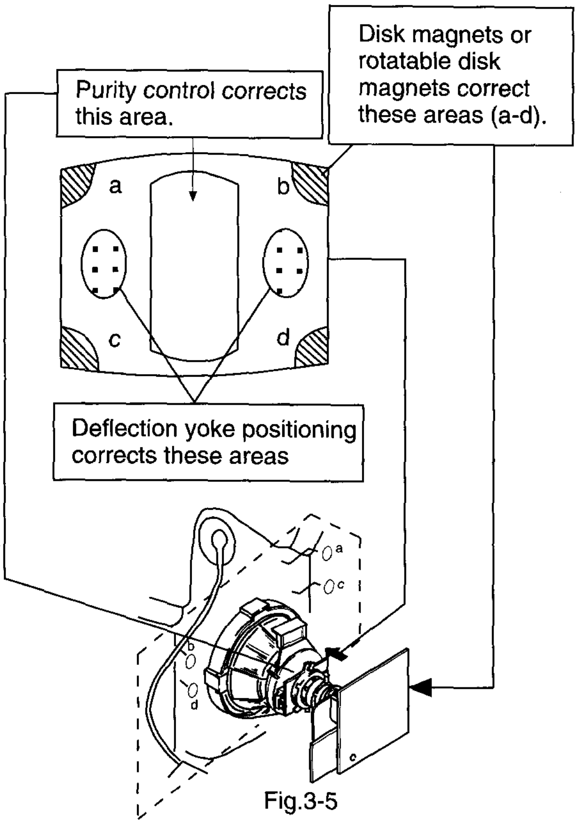
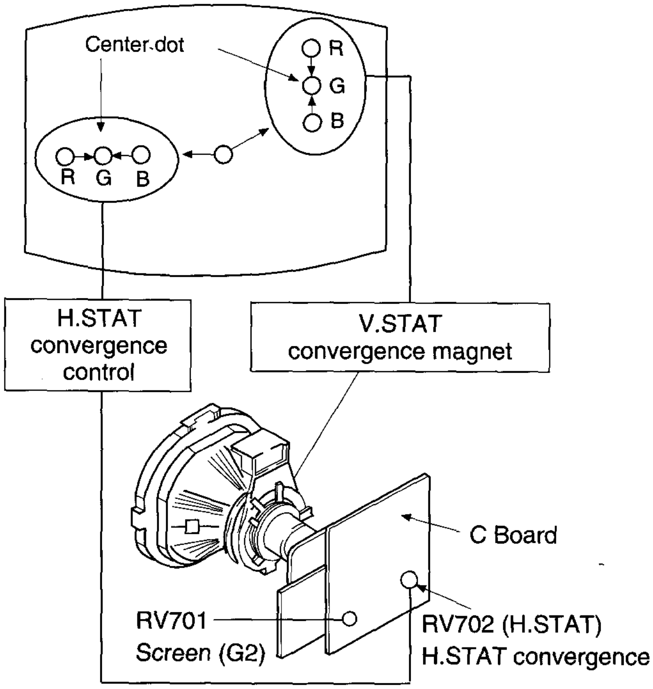

Purity control corrects this area.
Disk magnets or rotatable disk magnets correct these areas (a-d).
a
b
c
d
Deflection yoke positioning corrects these areas
a
c
b
d

Fig.3-5

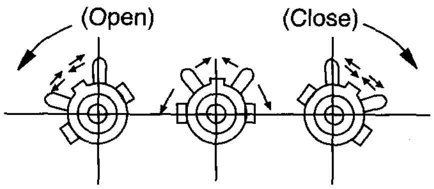
3-2. CONVERGENCE

(1) Screen center convergence (Static convergence)

1. Input a dot signal from the pattern generator. Normalize the picture setting.
2. (Moving horizontally), adjust the H.STAT control so that the horizontal red, green and blue dots coincide at the center of screen.
3. (Moving vertically), adjust the V.STAT magnet so that the vertical red, green and blue points coincide at the center of screen.

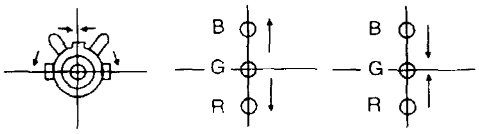

Center dot
R
G
B
R G B
H.STAT convergence control
V.STAT convergence magnet
C Board
RV701
Screen (G2)
RV702 (H.STAT)
H.STAT convergence

- If the horizontal dots are unable to coincide with the variable range of the H.STAT convergence, adjust together with the V.STAT convergence while tracking. (Adjust the convergence by tilting the V.STAT convergence or by opening or closing the V.STAT convergence.)

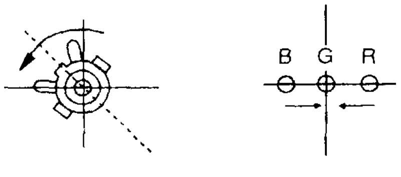


4. Movement of the red, green and blue dots by tilting the V.STAT magnet and by opening or closing the V.STAT magnet.

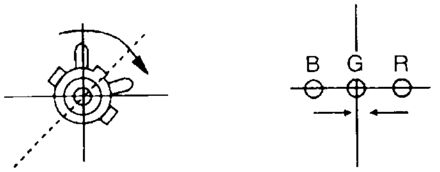
① By opening or closing the V.STAT magnet, the red, green and blue points move as shown below



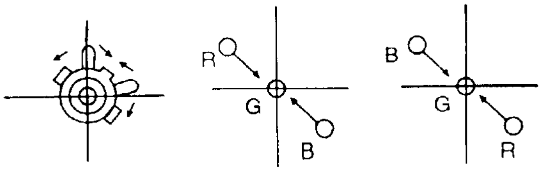
②By rotating the V. STAT magnet counterclockwise, the red, green and blue dots move as shown below.



③By rotating the V.STAT magnet clockwise, the red, green and blue dots move as shown below.



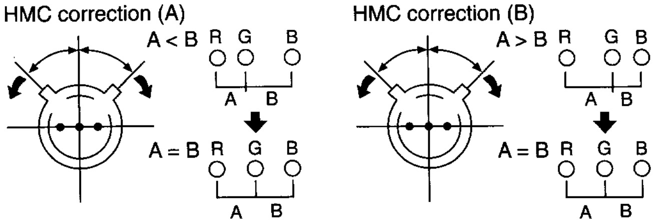
④By opening or closing the V.STAT magnet, the red, green and blue dots move as shown below.



- If the blue dot does not coincide with the red and green points, correct the points by using the BMC (Hexapole) magnet.

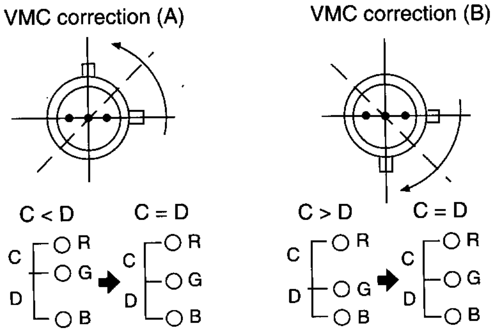
⑤Correction for HMC (horizontal mis-convergence) and VMC (vertical mis-convergence) by using the BMC (Hexapole) magnet.

①HMC correction by BMC (Hexapole) magnet and movement of the electronic beam.


HMC correction (A)

HMC correction (B)
A < B R G B
A B
A = B R G B
A B
A > B R G B
A B
A = B R G B
A B

②VMC correction by BMC (Hexapole) magnet and movement of the electronic beam.


VMC correction (A)

VMC correction (B)
C < D
C = D
C
D
R
G
B
C
D
R
G
B
C > D
C = D
C
D
R
G
B
C
D
R
G
B

Layout of each control

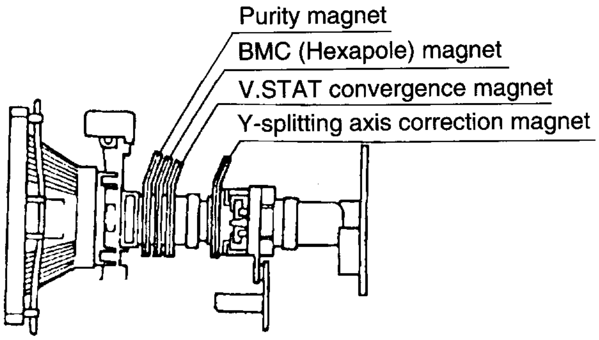
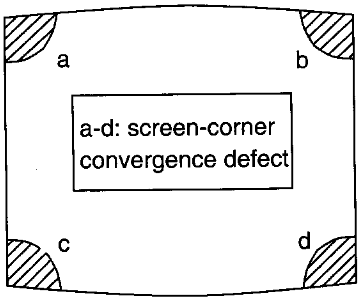
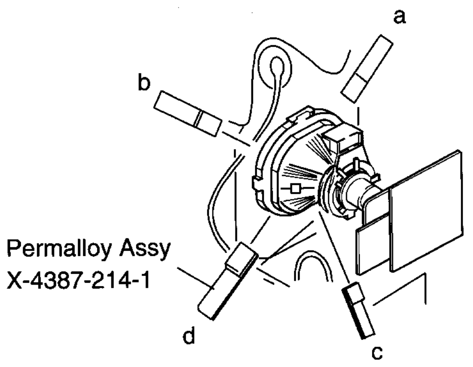

Purity magnet
BMC (Hexapole) magnet
V.STAT convergence magnet
Y-splitting axis correction magnet

Fig.3-5

- If you are unable to adjust the corner convergence properly, correct them with the use of permalloys.

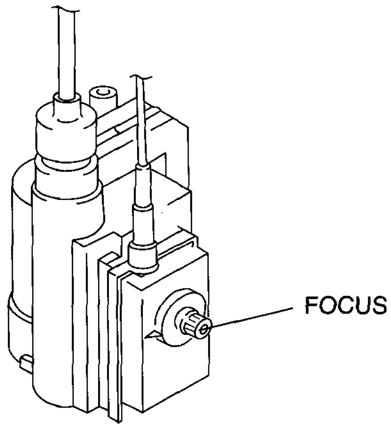

a
b
a-d: screen-corner convergence defect
c
d


a
b
Permalloy Assy
X-4387-214-1
d
c

Convergence adjustment with permalloy

3-3. Focus

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control on the flyback transformer for the best focus at the center of the screen.
   Bring only the center area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-4. Screen (G2), White balance (Adjustment in the service mode with remote commander)

G2 adjustment (RV702)

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 170V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control RV701 [SCREEN] on the C board to the point just before the return lines disappear.

White balance adjustment

1. Receive an all-white signal.
2. Enter into the Service Mode by pressing ' TEST ', ' TEST ' and ' 01' on the Service Commander.
3. Select ' CRT Driver ' from the on screen menu display and press OK .
4. The ' CRT Driver CXA1840' menu will appear on screen.

CRT Driver CXA 1840

Crt Driver		CXA1840
21	R DRIVE	41
22	G DRIVE	adj
23	B DRIVE	adj
24	R CUT-OFF	8
25	R C	0
26	G CUT-OFF	adj
27	G C	0
28	B CUT-OFF	adj
29	B C	0
30	AFC MASK	0
31	DRIVE LVL	52
32	SUB BRT	32
33	H SWEEP SW	on
34	SKEW D	off
35	OUT DC	0

5. Set picture to MAX.
6. Set the ' R DRIVE ' to 41.
7. Adjust the ' G DRIVE ' and ' B DRIVE ' with the ▲ ▼ buttons so that the white balance becomes optimum.
8. Press the OK button to write the data for each item.
9. Set picture to MIN.
10. Adjust ' R CUT-OFF ', ' G CUT-OFF' and ' B CUT-OFF ' with the ▲ ▼ buttons so that the white balance becomes optimum.
11. Press the OK button to write the data for each item.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander, RM-838.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing the + (plus) and - (minus) buttons on the customer front panel.

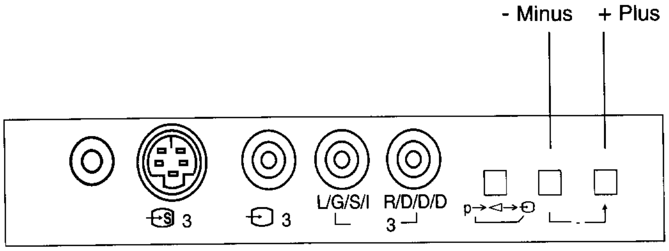
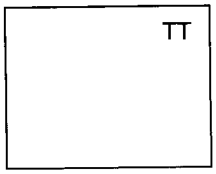


Fig. 4-1

2. "TT" will appear on the upper right corner of the screen.



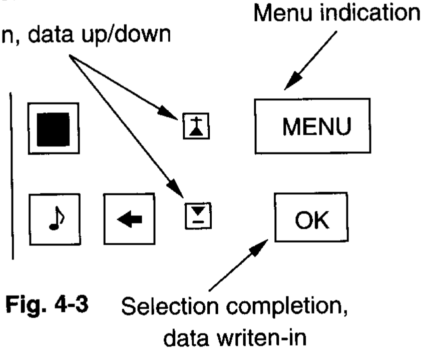

Command operation in service mode
Item selection, data up/down
Menu indication
MENU
OK
Selection completion,
data writen-in

Fig. 4-2

Fig. 4-3

3. Press "Test" " "Test" and 01 on the commander to get the menu on screen.

AE -- V7-62 AE-3 08/06/95

Init TV
PIP Adjust
Adjustments
Video Contr
CRT Driver
Dynamic Conv
Video Proc
PIP
PIP Dynamic
Aspect / Field
PAP
SRC
TDA6812
PALPLUS
TDA9160
TDA9145

4. Press the ⊼ and ⊻ buttons on the remote commander to select the adjustment item.
5. Press the OK button to proceed to the next menu.
6. If the adjustment item is 'CRT Driver', press the ⊻ button to move to 'CRT Driver'.
7. The Menu as indicated in Fig 4-5 will appear on the screen.

	CRT Driver	CXA1840
1	V POS	adj
2	V SIZE	adj
3	V LIN BAL	adj
4	V LIN	adj
5	V SCROLL	127
6	V ASP PAP	2
7	H POS	adj
8	H SIZE	adj
9	H PIN CUSH	adj
10	H TILT	adj
11	H UP COR	adj
12	H LOW COR	adj
13	AFC V BOW	adj
14	AFC V ANGLE	adj
15	V COMP	5

← Back O K Select

Fig. 4-4

8. Press the ⊻ button to move > to the adjustment item and press the OK button.
9. Press the ⊼ and ⊻ buttons to change the data in order to comply with each standard.
10. Press the OK button to write data into memory.
11. Turn off the power to quit the service mode when adjustments have been completed.

CXA1839 (VIDEO CONT)

Item No	Adjustment item	Data Amount
1	SUB BRT	8
2	SUB COL1	8
3	SUB CONT1	8
4	PIC	53
5	HUE	31
6	COL	31
7	BRT	31
8	SHP	31
9	SUB HUE	7
10	D.COIL	off
11	SHP LIM	off
12	AGE WHT	off
13	R-Y/R	13
14	R-Y/B	15
15	G-Y/R	7
16	G-Y/B	5
17	RGB LEV2	8
18	SUB SHP	3
19	SUB FO	1
20	PRE/OVER	0
21	NR LEVEL	1
22	DC TRAN	0
23	DYN PIC	1
24	CEC LEVEL	2
25	VM LEVEL	2
26	ABL MODE	1
27	DYN ABL	off
28	Y SYM SW	off
29	AGE BLK	off

CXD2035 (ASPECT)

Item No	Adjustment item	Data Amount
1	COMPRESS	7
2	FRAME WID	5

CXD2030 (VIDEO PROCESSOR)

Item No	Adjustment item	Data Amount
1	DNR	on
2	DNR VALUE	5
3	TA SYN CLP	16
4	TB BGP	50
5	TD CLP	25
6	FOTO CD SW	off
7	BLK PORCH	16
8	NT TD BGP	25
9	PAL TD BGP	25
10	N.SECAM TB	50
11	SECAM TB	50
12	358 NR LVL	3
13	443 NR LVL	5

CXD2031 (PAP)

Item No	Adjustment item	Data Amount
1	M.PH.WR.ST	45
2	S.PH.WR.ST	34
3	M.RD. START	40
4	BRT SUB	8

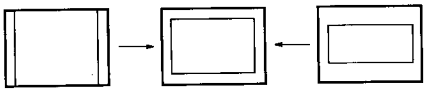
Typical Value (OSD based) when receiving PAL Philips pattern.

DEFLECTION SYSTEM ADJUSTMENT

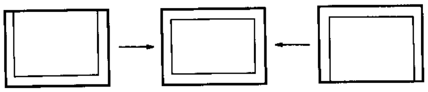
1. Enter into the service mode and select 'CRT Driver'.The 'CRT Driver CXA1840' adjustment menu will be displayed.
2. Select and adjust each item in order to get an optimum image.

Item No	Adjustment item	Data Amount
1	V POS	adj
2	V SIZE	adj
3	V LIN BAL	adj
4	V LIN	adj
5	V SCROLL	127
6	V ASP PAP	2
7	H POS	adj
8	H SIZE	adj
9	H PIN CUSH	adj
10	H TILT	adj
11	H UP COR	adj
12	H LOW COR	adj
13	AFC V BOW	adj
14	AFC V ANGLE	adj
15	V COMP	5
16	H COMP	0
17	WV CENT RF	144
18	WV AREA RF	36
19	W CENT VCR	160
20	W AREA VCR	20

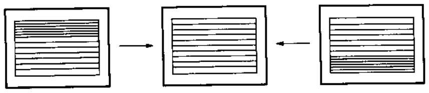
V SIZE



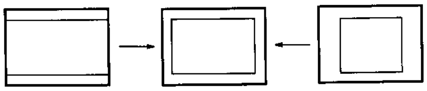
V POS



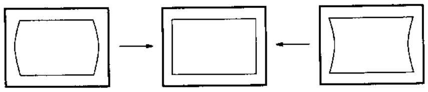
V LIN



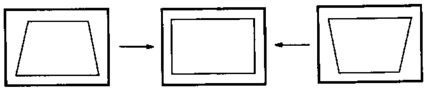
H SIZE



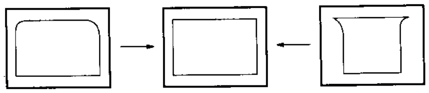
H PIN CUSH



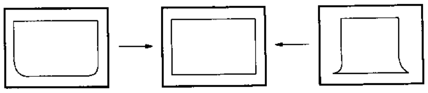
H TILT



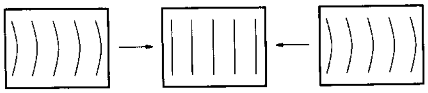
H UP COR



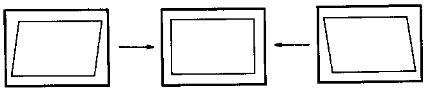
H LOWER COR



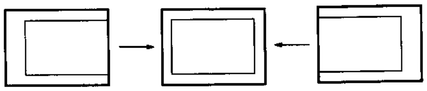
AFC V BOW



AFC V ANGLE



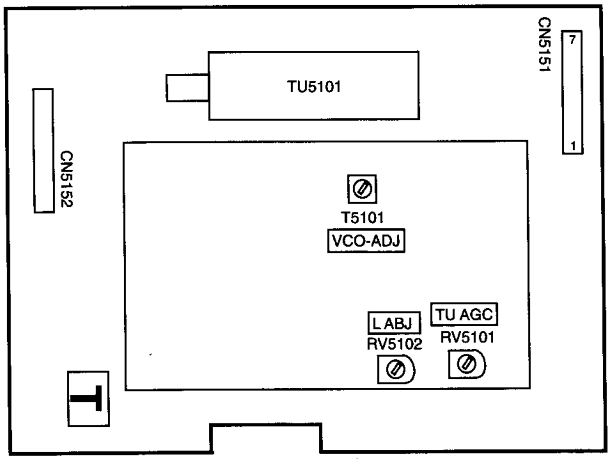
H POS



3. Press OK button to write the data.

If the menu display prevents viewing the screen while carrying out the adjustments, it can be removed by pressing 🔇 on the remote commander. Pressing 🔇 once again will restore the menu on screen.

4-2. VOLUME ELECTRICAL ADJUSTMENTS

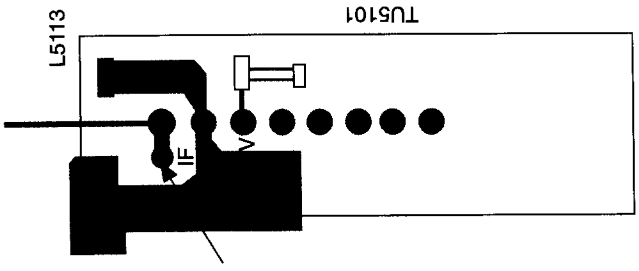


- T Board Component Side -

Fig. 4-5

IF Coil Adjustments (T5101)

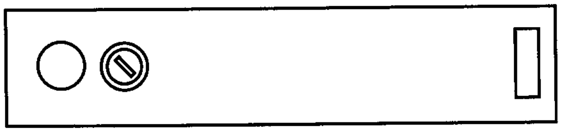
1. Input a 38.9Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for system B/G.
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5101 to obtain 2.5V+/-0.2V.



IF TEST POINT

Fig. 4-6

AGC Adjustment (IF Block)



- IF Block top side -

Fig. 4-7

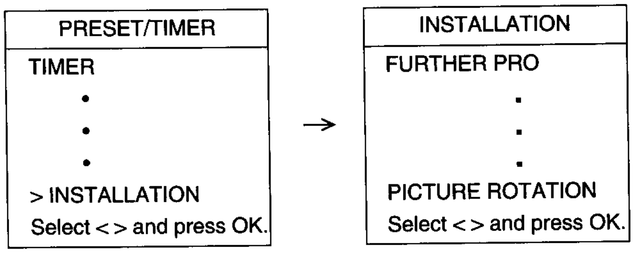
1. Receive an off-air signal.
2. Adjust the AGC VR so that there is no snow noise and cross-modulation visible on the screen.
3. Change the receiving channel and confirm status.

Sub Brightness Adjustment

1. Input a Phillips pattern.
2. Select 'RESET' from the menu to normalize the set.
3. Set the CONTRAST to minimum.
4. Press "Test" "Test" and 01 on the remote commander.
5. Adjust the BRIGHTNESS with the +/- buttons on the remote commander after selection of 'Sub Bright' so that the 0 IRE section of the gray scale is completely cut off and the 20 IRE section is only just visible on the screen.
6. Press 'MENU' and '0' twice to release Test mode 2.
7. Select 'RESET' from the menu to normalize the set.

Picture Rotation Adjustment

1. Input a PAL color bar signal.
2. Press the MENU button on the commander to get the menu on screen.
3. Press the ▲ and ▼ buttons of the commander and move > to PRESET/TIMER followed by INSTALLATION and PICTURE ROTATION.



PRESET/TIMER
TIMER
•
•
•
> INSTALLATION
Select < > and press OK.

→

INSTALLATION
FURTHER PRO
•
•
•
PICTURE ROTATION
Select < > and press OK.

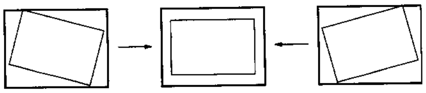


Fig. 4-8

4-3. TEST MODE 2:

Is available by pressing the Test button twice, OSD "TT" appears. The functions described below are available by pressing the two numbers. To release Test Mode 2, press 0, 10, 20 ... twice or switch the TV into Standby Mode. Pressing the two Local Control buttons (+ and –) during Power ON will also switch into "TT" mode.
In TT mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the menu to reappear . The Function is kept even when the menu is not displayed!!

00	Switch back to normal mode - TT mode off
01	Switch service menu on
02	Direct access to Noise reduction
03	Set Volume to 30%
04	Service Menu in "Service Mode"
05	Service Menu in "Production Mode"
06	Set Volume to 80%
07	Aging mode
08	Shipping condition (Production request) To ensure that all TV sets leave the Production with the same pressettings. Programme 1 is selected, AV IN is set to AV1, AV Out is set to TV Out, Volume and HP Volume is set to 35%, Resolution is set to high, Format is set to 4:3, Pip is set to Top Left position, Pip is switched off, TT mode is switched off, all analogue values are set to the reset setting, space Sound - Equalizer - Loudness = off, DNR off, Dig. Mode = 1, Wide Zoom Mode for 28W models, Menu Language Reset, Prog. Pointer table reset Non Interlace is allowed in Text mode.
09	Language reset. With this function the "Language Byte" in the NVM (Bank 0AAH Address 0DCH) is erased (set to 0FFH). The Language Menu appears now automatically when the TV set is switched ON as long as no new language is selected.
10	The TT number will be deleted. All numbers with 0 (10, 20, 30, 40, 50, 60, 70, 80, 90) will reset the TT number. A new number can be selected. TT display is kept
11	Direct access to Balance. With Cursor Up/Down the Balance can be controlled (w/o OSD, Menu display)
12	Direct access to Hue. With Cursor Up/Down the Hue can be controlled (w/o OSD, Menu display)
13	Dispaly of Software Version and TV set configuration
14	Production Info Display
15	Read factory setting from ROM (Program code) and store this data at Last Power Memory data location (The previous last power memory data is overwritten) AE3 has 3 packages of Analogue data: 1. Last Power memory data. This data is sent continiously to the corresponding IC's (TDA1839, SC, TDA6812) with this data the TV picture/sound appears. 2. Reset data. By presssing "Reset" in the menu this data is transfered from Reset Data location to the Last Power data location in the NVM. That means the Last Power Memory Data is overwritten by the Reset data last Power memory and Reset data is now the same. 3. Factory fixed data. Fixed data is held in the ROM code of the micro processor (ROM can't be changed)

16	Save actual Last Power Memory data at Reset Data location)The previous Reset data is overwritten)
15/16	With these two functions, it is possible to preset user defined Reset values (just TT16) or to preset factory defined Reset values (first TT15 then TT16)
17	This function presets the Labels for the AV sources: AV1, RGB, AV2, YC2, AV3, YC3, AV4, YC4.
18	Text possible On/Off selection of Text (toggle function)
19	Direct access to Stereo Separation With cursor Up/Down the Stereo separation can be adjusted (w/o OSD, Menu display)
20	see TT10
21	Picture Rotation automatic function : (-4) -> (+4) -> 0
22	Operating Timer and Error Monitor display
23	Direct access to Sub Brightness Adjustment With cursor Up/Down the Sub BRT can be adjusted (w/o OSD, Menu display)
24	Direct access to Sub Color. With Cursor Up/Down the Sub Color can be adjusted.
25	Status menu display (SubController, CXA1840 Status, Main Controller.
26	Text Character selection (Char set 06 ->West Europe)
27	Text Character selection (Char set 38 ->East Europe)
28	Text Character selection (Char set 40 ->West Europe) US English
29	Text Character selection (Char set 55 ->West Europe) Turkish
30	see TT10
31	Text Character selection Char set Russian
32	Text Character selection Char set Greek
33	Programme catching test (Programme catching can be released by "Menu command")
34	Multi PIP adjustment. Direct access to 3.58 horizontal write position. With Cursor Up/Down the 3.58 H write Pos can be adjusted (w/o OSD, Menu display).
35	Multi PIP adjustment. Direct access to 4.43 horizontal write position. With Cursor Up/Down the 4.43 H write Pos can be adjusted (w/o OSD, Menu display).
36	Mtx Register 112 = intern display clock
37	Mtx Register 112 = extern display clock

38	Automatic selection of Screen Modes: (not for S (4:3) Models. 4:3 -> Zoom -> Zoom up -> Zoom Center -> Zoom down -> Zoom Center -> smart -> (if Pal+ signal) PALPLUS -> wide.
39	Reset Programme Table (NVM Bank 0ACH) The sorting of programmes in "Programme Sorting Menu" is reset.
40	see TT10
41	no function
42	no function
43	no function
44	no function
45	Set NVM to Protect mode (Bank 0AEH Adr. 0FFH write with 0)
46	IR Channel Pressetting Mode. The channel pressetting can be done by a Special IR transmitter Sequence: TT46 -> -- PR Number select dispaly appears Select Prog. No from where the channel shall be stored. --> Now TV is waiting for IR sequence <-- --> If no IR transmission starts TT46 is released after 20 secs <-- !Note: When TT46 is active, any transmission will be interpreted as PROG data !
47	Direct access to Headphone Source Selection (Production use)
48	Direct access to AGC Adjustment (PWM) output.
49	The EEPROM Testbyte is erased. After Power OFF -> ON the complete EEPROM data (exept channel tables) is overwritten. EEPROM Protection byte is set to 0 protection mode
50	see TT10
51	Strobo mode is activated.
52	no function.
53	Photo mode test (Photo mode can be released by "Menu command").
54	Direct access to Velocity Modulation VM (Production use)
55	MTX Slicer Control "Low Pass" (only Sys L)
56	MTX Slicer Control "No Compensation"
57	Megatext Service Menu ON
58	MTX Small Framing Code Window
59	MTX Wide Framing Code Window
60	see TT10

61	Set Dolby default values.
62	ACI disable.
63	ACI enable.
64	Reset all IIC Slave commands (Production use)
65	Reset stored error codes in NVM.
66	Reset for PALplus local controller and Sub Controller.
67	Direct access to Headphone Volume. With cursor Up/Down the Headphone Volume can be controlled (w/o OSD, menu display) (Production use)
68	ignore errors.
69	reset ignore errors (show errors)
70	see TT10
71	Picture Rotation Function On/Off toggle.
72	Dolby register setting menu.
73	Megatext RGB textlevel one step decreased (max 3 steps down starting from E0h) (Production use)
74	Megatext RGB textlevel one step decreased (max 1 steps down starting from E0h) (Production use)
75	reserved
76	CXD 2030 Default data setting.
77	CXD 2031 Default data setting
78	CXD 2032 Default data setting
79	CXD 2033 Default data setting
80	see TT10
81	CXD 2033D Default data setting
82	CXD 2035 Default data setting
83	CXA 1526 Default data setting
84	CXA 1839 Default data setting
85	CXA 1840 Default data setting
86	TDA 9145 Default data setting
87	TDA 9160 Default data setting
88	no function
89	no function
90	see TT10

4-4. ERROR MONITOR AND DETECTION

In the menu 'Error Monitor', information about the error status of the set is displayed.

- Actual operating time
- Last five errors which are stored in the NVM.
- Actual error.

Error Monitor

Operating Time

000355 h 35min

Saved Errors

1. 40h=D1 Board
2.. 60h=Q Board
3. 70h=T Board
4. 00h=no error occured
5. 00h=no error occured

Actual Error

-> 00h=no error occured

to reset the NVM press 'TT' 65

Additionally the Error Reader can be connected to the service connector to read out the actual errors.

The device check itself is active while the TV set is running out of stand-by mode. The devices are checked by sending an I^2C start sequence and if there is no acknowledgement back from the devices it is regarded as an error. Each device is checked three times and if at every attempt there is no reply from the relevant device an error is given. To read the error codes press 'TT' followed by 22 on the commander to view the Error Monitor menu.

To reset the error codes in the NVM press 'TT' followed by 65 on the remote commander.

TABLE OF ERROR CODES

Error Code	Device	Description	Board
000h	no device	no error has occured	-
001h	IIC 1 and IIC 2	IIC 1 and IIC 2 blockaded	-
002h	IIC 1	IIC1 is blockaded	-
003h	IIC 2	IIC 2 is blockaded	-
010h	A Board	A Board is defective	-
020h	A1 Board	A1 Board is defective	-
030h	BX-Board (B,B1,B2)	B, B1, or B2 Board is defective	-
040h	D1 Board	D1 Board defect	-
050h	J Board	J Board defect	-
060h	Q Board	Q Board defect	-
070h	T Board	T Board defect	-
011h	CXP85332	No response from the Subcontroller	A
012h	ST24C16	No response from the NVM	A
013h	SDA5273	No response from the Megatext IC	A
014h	TDA6812	No response from the Sound Processor	A
015h	SAA7283	No response from the Nicam Decoder	A
016h	UV916H	No response from the Main Tuner	A
017h	CXA1839Q	No response from the Video Controller	A
018h	CXA1840	No response from the CRT Driver	A
019h	RGB8443	No response from RGB/YUV	A
021h	TDA6622	Audio processor of the Center and Surround channel in the case of Dolby Prologic does not respond.	A1
022h	TDA7317	No response from the Equalizer.	A1
031h	CXD2030R	No response from the Digital Video Processor.	B/B1
032h	CXD2031R	No response from the Twin Picture IC.	B1
033h	CXD2032R	No response from the Digital Sampling Rate Converter.	B/B1
034h	CXD2033R	No response from the Picture in Picture IC.	B
035h	CXD2035R	No response from the Aspect Converter.	B/B1
036h	TDA9160	No response from the Chroma Decoder.	B/B1
037h	TDA9145	No response from the Chroma Decoder (on French models only.)	B2
041h	CXA1526	No response from the Convergence IC.	D1
051h	CXA1855	No response from the AV-Switch	J
061h	83C65202	No response from the Local Controller.	Q
071h	UV1316/TSA5526	No response from the Subtuner.	T
072h	CXA1875	No response from the Port Expander.	T

4-5. LED Error Blinking

In addition to the Error Monitor facility there is an additional error indicator which indicates the most important errors also in the case of IIC error and Megatext error in opposition to the error monitor.
The error is recorded by counting the number of times that LED B blinks. This facility also works while in stand-by mode.

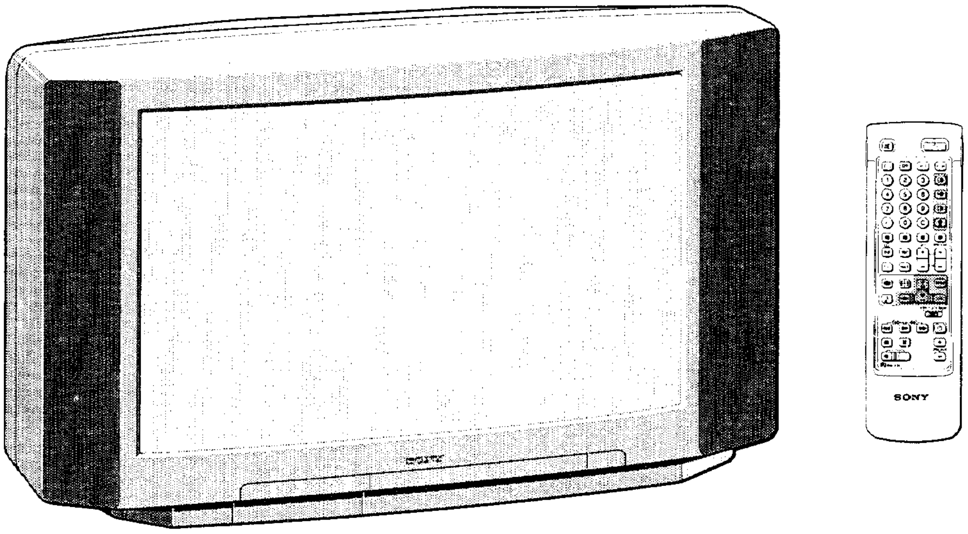
LED Error Code.

Error	number of LED B blinking	Description	Board
0	1	general IIC error	-
1	2	ST24C16 NVM error	A
2	3	CXP85332 subcontroller error	A
3	4	CXD2030R error of Digital Video Processor	B/B1
4	5	CXD2032R error of Digital Sampling Rate Converter	B/B1
5	6	CXD2035R error of Aspect Converter	B/B1
6	7	TDA1839 error of Video Controller	A
7	8	TDA1840 error of CRT Driver	A
8	9	CXA1855 error of AV switch	J
9	11	SDA5273 error of Megatext	A
10	12	TDA6812 error of Sound Processor	A
11	16	V-Protection (In this case the TV set is switched of immediately)	-

SERVICE MANUAL

AE-3 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-28WS3A	RM-838	Italian	SCC-J26B-A
KV-28WS3B	RM-838	French	SCC-J27B-A
KV-28WS3D	RM-838	AEP	SCC-J23A-A
KV-28WS3E	RM-838	Spanish	SCC-J28B-A
KV-28WS3K	RM-838	OIRT	SCC-J29B-A
KV-28WS3U	RM-838	UK	SCC-J24A-A



Super**Trinitron**

WIDE

TRINITRON® COLOR TV

SONY®

ITEM MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
French	L, B/G/H, I	L VHF: F2-F10 UHF: F21-F69 Cable TV: B-Q B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 I B21-69	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
AEP	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: B-Q UHF: S21-S41	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
Spanish	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 SECAM D/K VHF: R01-R12 UHF: R21-R60	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: B-Q UHF: S21-S41	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
UK	I	UHF: 21-69	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)

MODEL	Italian	French	AEP	Spanish	OIRT	UK
Power Consumption	141W	153Wh	141W	153Wh	151W	199W

SPECIFICATIONS

Picture Tube	Super Trinitron Wide Approx. 71 cm (28 inches) (Approx. 66 cm picture measured diagonally) 110° -deflection

Rear/Front Terminals

[REAR]

→⊖ 21-pin Euro connector (CENELEC standard)
- Input for audio and video signals
- Input for RGB
- Outputs of TV video and audio signals

S→2/→S2 21-pin Euro connector
- Input for audio and video signals
- Input for S video
- Outputs of TV video and audio signals (selectable)

S→4/→S4 21-pin Euro connector
- Input for audio and video signals
- Input for S video
- Outputs of TV video and audio signals (monitor out)

→S2 , →S4 S video inputs - 4 pin DIN
→⊖ Audio inputs (L, R) - phono jacks
S→ S video output - 4 pin DIN
⊖→ Audio outputs - phono jacks
⊖→ Audio outputs (variable) - phono jacks
External speaker terminals : 2-pin DIN (5)

[FRONT]

→⊖ Video input - phono jack
→⊖3 Audio inputs - phono jacks
→S3 S video input - 4-pin DIN
Ω Headphone jack : stereo minijack

Sound output	2x30W (music power) Centre 1x30W Surround 2x15W
Dimensions	Approx. 798x491x531 mm
Weight	Approx. 47 kg
Supplied accessories	Remote Commander RM-838 (1) Scroll Commander RM-860 (1) Batteries R6 (2) Surround speaker (2) Surround Loudspeaker lead (2)

Other features
- Digital comb filter (High resolution)
- FASTEXT
- DNR (Digital Noise Reduction)
- Scroll Commander
- Dolby Digital Surround System
- 100Hz Digital Plus
- Graphic Equalizer
- PAP (Picture and Picture)
- PAL plus

[RM-838]

Remote control system	infrared control
Power requirements	1.5V dc 1 battery IEC designation R6 (size AA)
Dimensions	Approx. 65x225x21 mm (w/h/d)
Weight	Approx. 157g (Not including battery)

Design and specifications are subject to change without notice.

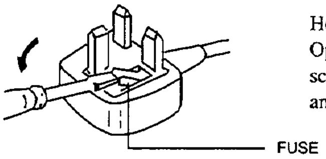
Model name / Item	KV-28WS3A	KV28WS3B	KV-28WS3D	KV-28WS3E	KV-28WS3K	KV-28WS3U
Pal Comb	ON	ON	ON	ON	ON	ON
PIP	OFF	OFF	OFF	OFF	OFF	OFF
RGB Priority	ON	ON	ON	ON	ON	ON
60 Programs	OFF	OFF	OFF	OFF	OFF	OFF
PAL PLUS	ON	ON	ON	ON	ON	ON
DOLBY	ON	ON	ON	ON	ON	ON
DSP	OFF	OFF	OFF	OFF	OFF	OFF
EQUALIZER	ON	ON	ON	ON	ON	ON
SUB TUNER	ON	ON	ON	ON	ON	ON
PAP	ON	ON	ON	ON	ON	ON
MLT.PIP	OFF	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front 3	ON	ON	ON	ON	ON	ON
Scart 4	ON	ON	ON	ON	ON	ON
DYN. CONV.	OFF	OFF	OFF	OFF	OFF	OFF
PIC. ROT.	ON	ON	ON	ON	ON	ON
Language Preset	Italian	French	German	Spanish	OIRT	English

WARNING (KV-28WS3U only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** capacity. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by **ASTA** to **BS 1362**, ie one that carries the mark.

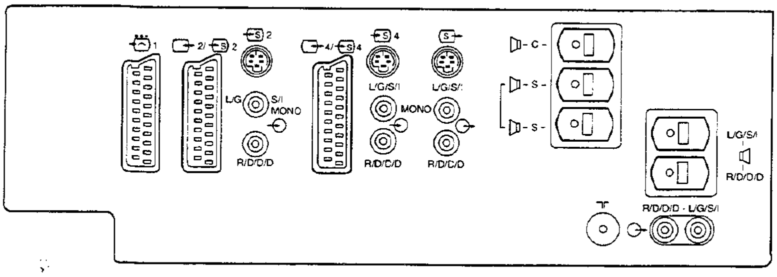
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME.
IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED.
THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET.

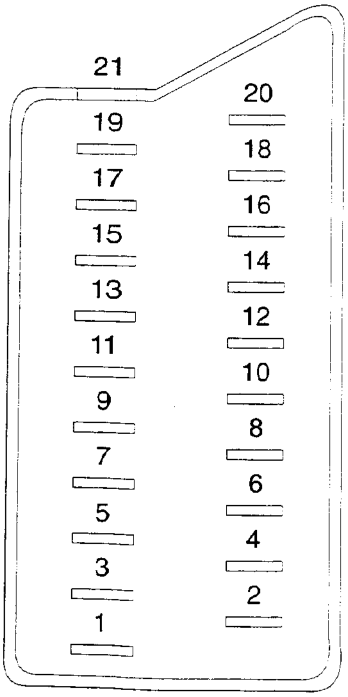
When an alternative type of plug is used it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.



How to replace the fuse.
Open the fuse compartment with the screwdriver blade
and replace the fuse.

21 pin connector (⇥1, S→2/→S2 , S→4/→S 4)

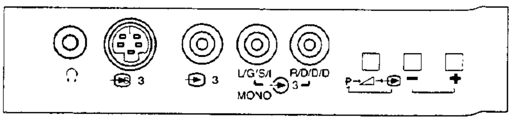




Pin No		Signal	Signal level
1	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance:less than 1kohm*
2	○	Audio input B (right)	Standard level:0.5Vrms Input impedance:More than 10kohms*
3	○	Audio output A (left)	Standard level:0.5Vrms Output impedance:less than 1kohm*
4	○	Ground (audio)	
5	○	Ground (blue)	
6	○	Audio input A (left)	Standard level:0.5Vrms Input impedance:More than 10kohms*
7	○	Blue input	0.7V±3dB, 75ohms, positive
8	○	Function select (AV control)	High state (9.5—12V):Part mode Low state (0—2V):TV mode Input impedance:More than 10kohms Input capacitance:Less than 2nF
9	○	Ground (green)	
10	○	Open	
11	○	Green	Green signal:0.7V±3dB. 75ohms, positive
12	○	Open	
13	○	Ground(red)	
14	●	Ground (blanking)	
15	○	Red input	0.7V±3dB, 75ohms, positive
	—	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance:75ohms
17	○	Ground (video output)	
18	○	Ground (video input)	
19	○	Video output	1V±3dB, 75ohms, positive Sync:0.3V(−3, +10dB)
20	○	Video input	1V±3dB, 75ohms, positive Sync:0.3V(−3, +10dB)
	—	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync:0.3V(−3, +10dB)
21	○	Common ground (plug, shield)	

○ Connected ● Not Connected (open) * at 20Hz - 20kHz

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm , positive Sync. 0.3V -3/+10 dB
4	C (S signal) input	0.3V ± 3dB 75 ohm , positive Sync.



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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.
LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

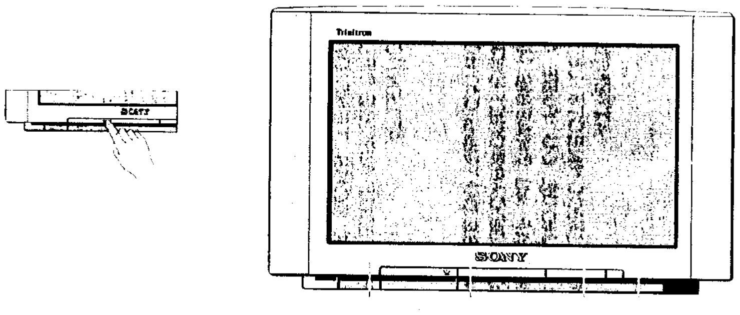
LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE PUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

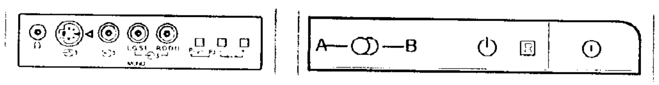
SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

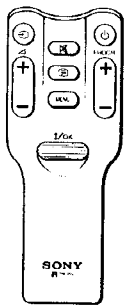
TV set - front



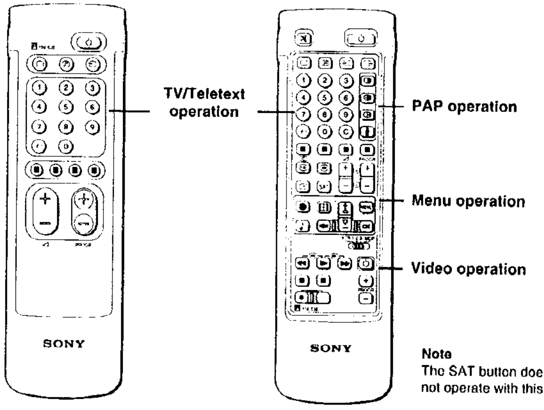


Symbol	Name	Refer to page
ⓘ	Main power switch	41, 48
⏻	Standby indicator	48
A-Ⓓ-B	Stereo A/B mode indicators	50
🎧	Headphones jack	59
→Ⓢ 3, →⊡ 3, →⊙ 3	Input jacks (S video/video/audio)	59
P → ◿ → ⊡ ↺	Function selector (Programme/volume/input)	48
–/+	Adjustment buttons for function selector	48

Scroll Commander RM-860



Remote Commander RM-838



Simple side

Full-Function side

Note
The SAT button does not operate with this TV.

TV/Teletext operation

Symbol	Name	Refer to Page
🔇	Muting on/off button	49
⏻	Standby button	48
▢	TV power on/TV mode selector button	48
⊜	Teletext button	49
→⊡	Input mode selector	49
⊡→	Output mode selector	60
1,2,3,4,5,6, 7,8,9 and 0	Number buttons	48
-/--	Double-digit entering button	48
C	Direct channel entering button	47
◿ +/–	Volume control button	48
PROGR +/–	Programme selectors	48
⊕⊕	Teletext page access buttons	56
●	Picture adjustment button	50
♪	Sound adjustment button	50
⊕	On-screen display button	49
⊛	Teletext hold button	56
⊙	Time display button	49
■■■■	Fastext buttons	56
⊗	»Freeze« button	49
▯▯	Button to change Screen Format	49

PAP (Picture-and-picture) operation

Symbol	Name	Refer to Page
◑	PAP on / off button	53
↑	PAP source selector	53
⊕	Swap button	53
⊕	PAP freeze button	53

Menu operation

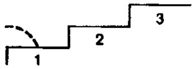
Symbol	Name	Refer to Page
MENU	Menu on / off button	41
△+/▽–	Select buttons	41
OK	OK (confirming) button	41
←	Back button	41
↕/OK	Scroll Commander: Roller to select/ confirm menu functions	41

Video operation

Symbol	Name	Refer to Page
VTR1/2/3 MDP	Video equipment selector	61
◀◀ ▶ ▶▶ ■ II ● ⏻ PROGR +/–	Video equipment operation buttons	61

Getting Started

Step 1 – Connection



Notes:
- Connect the speakers using the leads provided making sure to observe the following polarity:

The striped lead is (+) and should be connected to the red terminal on the speaker.
The black lead is (–) and should be connected to the black terminal on the speaker.

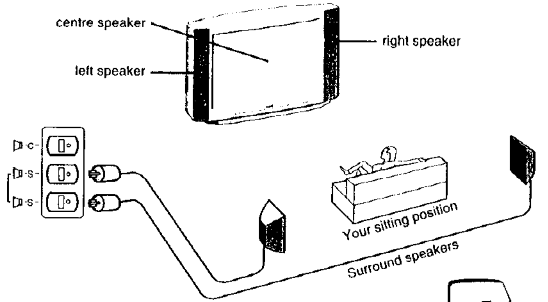
❶ Connect the speakers

Dolby (*) Pro Logic Surround requires normally 5 speakers, whose functions are as follows:
Centre speaker: (incorporated in the TV set): to anchor the stable sound image, like dialogue, to the TV screen.
Left and Right front speakers: for the normal two-channel stereo broadcasts.
Surround speakers: for the special effects created by the surround channel.

To obtain the full benefit of your Dolby Pro Logic Surround TV, the speakers should be positioned as shown below.

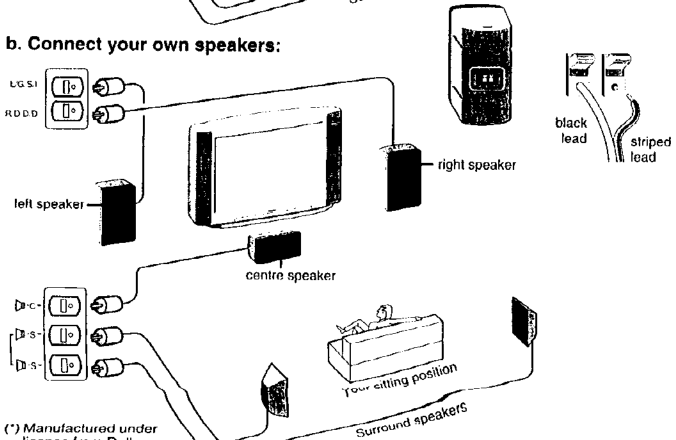
Before switching on: connect the speakers to the TV set.

a. Connect the speakers provided only:


centre speaker
left speaker
right speaker
Your sitting position
Surround speakers

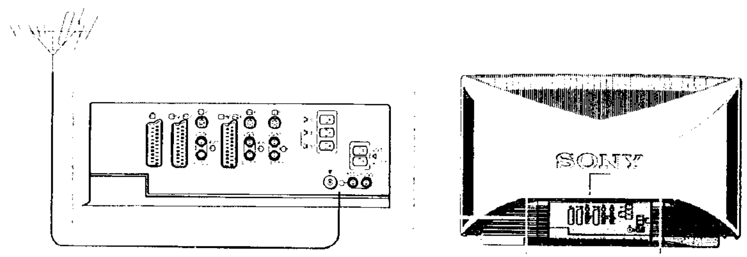
Note:
If you prefer to use your own speakers, make sure they are at least 8 Ω impedance and are magnetically shielded otherwise picture distortion may occur.

b. Connect your own speakers:


left speaker
right speaker
centre speaker
black lead
striped lead
Your sitting position
Surround speakers

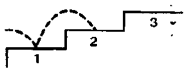
(*) Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY, the double-D symbol DD and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

❷ Connect the aerial

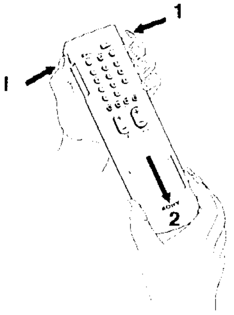


Fit an IEC aerial connector attached to 75-ohm coaxial cable (not supplied) to the ⊤ socket at the rear of the TV. Make sure to use an aerial cable corresponding to the relevant regulations.

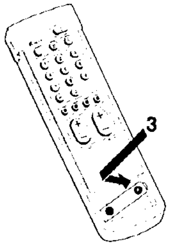
Step 2 – Preparation



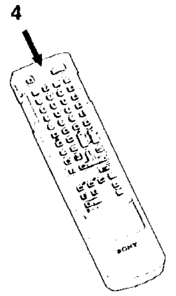
Insert the batteries into the Remote Commanders



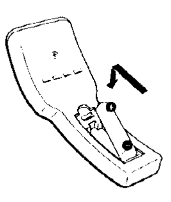
Remove the cover.



Check the correct polarities.

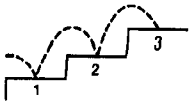


Refit the outside cover making sure that the Full-Function side is visible to use the menu in Step 3.



Check the correct polarities.

Step 3 Tuning in to TV Stations



Once you have set up the TV, you can choose the language of the menu. Then you should preset the channels (up to 100 channels) by choosing either the automatic or manual method.

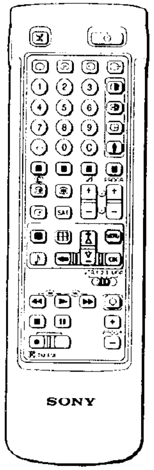
The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you only have a few channels and want to preset channels one by one. The manual method is also convenient for allocating programme numbers to various video input sources.

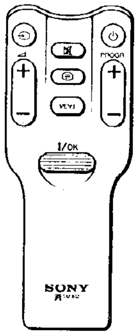
Before you begin

- Check that the Full-Function side of the Remote Commander is visible.
- Locate Menu operation buttons on the Remote Commander. They are shaded in the illustration at the left.

Easy Menu operation using the Scroll Commander

In addition to our double-sided Remote Commander, your TV set is supplied with an extra Remote Commander. The »Scroll Commander« works with a roller for convenient, fast-access operation of the menu functions.
Move the roller upwards to move the cursor upwards, move the roller downwards to move the cursor downwards, press the roller to confirm a selection. The other buttons on this commander have the same functions as the respective buttons on the double-sided Remote Commander.





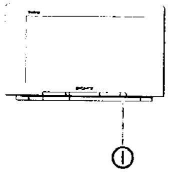
❶ Choose a language

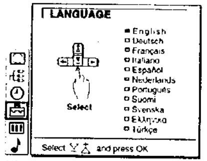
1 Depress ⏻ on the TV.
The TV will switch on. If the standby indicator on the TV is lit, press ▢ or a number button on the Remote Commander.

2 Press the MENU button.
The LANGUAGE menu appears. (See Fig. 1)

MENU

3 Select the language you want with △+ or ▽– and press OK.





LANGUAGE

- ■ English
- ▫ Deutsch
- ▫ Français
- ▫ Italiano
- ▫ Español
- ▫ Nederlands
- ▫ Português
- ▫ Suomi
- ▫ Svenska
- ▫ Ελληνικα
- ▫ Türkçe

Select

Select ▽ △ and press OK

Fig. 1

To go back to main menu:
Keep pressing ⬅.

To go back to the normal TV picture:
Press MENU. Normal TV picture will be restored after one minute if menu functions are not selected.

Note on the Demo function:
If you choose Demo in the Installation menu, you can see a sequential demonstration of the menu functions.
Press MENU to stop the function.

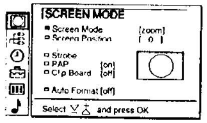
❷ Display the Menu

Press the MENU button twice.
The main menu appears. (See Fig. 2)

Using △+ or ▽– select the symbol 🧰 and press OK.
Now, choose one of the methods described overleaf:
»Preset Channels Automatically«

or

»Preset Channels Manually«.



SCREEN MODE

- ■ Screen Mode [zoom]
- ▫ Screen Position [0]
- ▫ Strobe
- ▫ PAP [on]
- ▫ Clip Board [off]
- ▫ Auto Format [off]

Select ▽ △ and press OK

Fig. 2

With this method, you can preset all receivable channels at once.

To stop automatic channel presetting:
Press ⬅ on the Remote Commander.

Notes:
• After presetting the channels automatically, you can check which channels are stored on which programme positions. For details, see »Displaying the Programme Table« on page 49.

• You can sort the programme positions to have them appear on screen in the order you like. For details, see »Sorting Programme Positions« on page 44.

Note:
Programme names are automatically taken from Teletext if available. If not, please refer to page 46 »Captioning a Station name« for more information.

❸ Preset channels automatically

1 Select the symbol 🧰 for »Preset« with △+ or ▽– and press OK.
The PRESET menu appears. (See Fig. 3.)

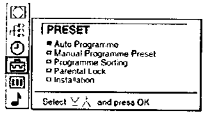
2 Select »Auto Programme« with △+ or ▽– and press OK.
The AUTO PROGRAMME menu appears. (See Fig. 4)

3 Press OK.
Select if necessary the TV broadcast system (B/G for Western European or D/K for Eastern European countries) with △+ or ▽– and press OK. The first element of the »PROG« number will be highlighted.

4 Select the programme (number button) from which you want to start presetting. Select the first element of the double-digit number with △+ or ▽– or the number buttons (e.g. For »04«, select »0« here) and press OK.
The second element of »PROG« will be highlighted.

5 Select the second element of the double-digit number with △+ or ▽– or the number buttons (e.g. For »04«, select »4« here) (See Fig. 5) and press OK.

6 Select »C« or »S« with △+ or ▽– and press OK.
The automatic channel presetting starts.
When presetting is finished, the preset menu reappears. All available channels are now stored on successive number buttons. Press menu to restore normal TV picture.

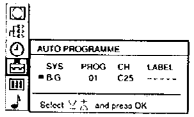


PRESET

- ■ Auto Programme
- ▫ Manual Programme Preset
- ▫ Programme Sorting
- ▫ Parental Lock
- ▫ Installation

Select ▽ △ and press OK

Fig. 3

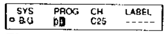


AUTO PROGRAMME

	SYS	PROG	CH	LABEL
■	B.G	01	C25	-----

Select ▽ △ and press OK

Fig. 4



	SYS	PROG	CH	LABEL
▫	B.G	0	C25	-----

Fig. 5

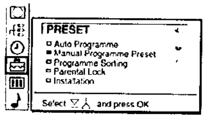
Use this method if there are only a few channels in your area to preset or if you want to preset channels one by one.
You may also allocate programme numbers to various video input sources.

If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to main menu
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

❸ Preset channels manually

1 Select the symbol 🧰 for »Preset« with △+ or ▽– and press OK.
The PRESET menu appears. (See Fig. 6)

2 Select »Manual Programme Preset« with △+ or ▽– and press OK.
The MANUAL PROGRAMME PRESET menu appears. (See Fig. 7)

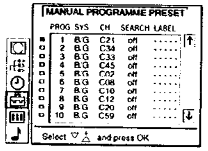


PRESET

- ▫ Auto Programme
- ■ Manual Programme Preset
- ▫ Programme Sorting
- ▫ Parental Lock
- ▫ Installation

Select ▽ △ and press OK

Fig. 6



MANUAL PROGRAMME PRESET

	PROG	SYS	CH	SEARCH	LABEL
■	1	B.G	C21	off	-----
▫	2	B.G	C34	off	-----
▫	3	B.G	C33	off	-----
▫	4	B.G	C45	off	-----
▫	5	B.G	C07	off	-----
▫	6	B.G	C08	off	-----
▫	7	B.G	C10	off	-----
▫	8	B.G	C12	off	-----
▫	9	B.G	C20	off	-----
▫	10	B.G	C59	off	-----

Select ▽ △ and press OK

Fig. 7

3 Using △+ or ▽−, select the programme position (number button) to which you want to preset a channel, and press OK.

4 Select, if necessary the TV broadcast system or a video input source (EXT) with △+ or ▽−.

5 Then press OK. The CH position wil be highlighted. (See Fig. 8)

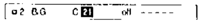

▫2 BG C 21 off -----

Fig. 8

To tune in a channel by frequency:
After selecting F in step 6, enter three digits using the number buttons.
Press OK.

6 Using △+ or ▽−, select C (to preset a regular channel), S (cable channel) or F (to tune in by frequency) and press OK.
The first element of the »CH« number will be highlighted.
If you have selected EXT in step 5, select the video input source with △+ or ▽−. (See Fig. 9)

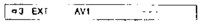

▫3 EXT AV1 ---

Fig. 9

There are two ways to preset channels. If you know the channel number, go to step »7-Manual«,

or

if you don't know the channel number, go to step »7- Search«.

7 ***Manual***

-a Select the first element of the »CH« number with △+ or ▽− or the number buttons and press OK.
The second element of the »CH« number will be highlighted.

-b Select the second element of the number with △+ or ▽− or the number buttons.
The selected number appears. (See Fig. 10)

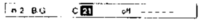

▫2 BG C 21 off -----

Fig. 10

-c Press OK
The »SEARCH« position is highlighted and the selected channel is now stored. (See Fig. 11)

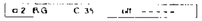

▫2 BG C 35 off -----

Fig. 11

-d Press OK until the cursor appears by the next programme position.

-e Repeat steps 3 to 7 to preset other channels.

If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to main menu:
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

7 ***Search***

-a Press OK repeatedly until the colour of the SEARCH position changes.

-b Start searching for the channel with △+ (up) or ▽− (down).
The CH position changes colour. (See Fig. 12)
The CH number starts counting up or downwards. When a channel is found, it stops. (See Fig. 13)

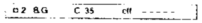

▫2 BG C 35 off -----

Fig. 12

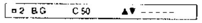
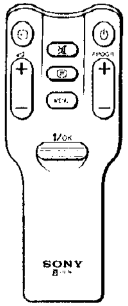

▫2 BG C 50 ▲▼ -----

Fig. 13

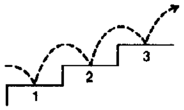
-c Press OK if you want to store this channel. If not, press △+ or ▽− to continue channel searching.

-d Press OK until the cursor appears by the next programme position.

-e Repeat steps 3 to 7 to preset other channels.



Additional Presetting Functions

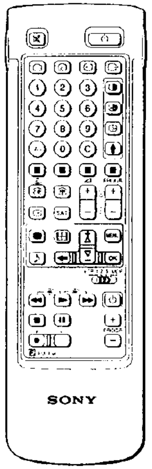


This section shows you additional presetting functions such as sorting or skipping programme positions, captioning a station name, manual fine-tuning, and using the parental lock.

Before you begin

- Check that the Full Function side of the Remote Commander is visible
- Locate the Menu operation buttons.

PROGRAMME SORTING



Sorting Programme Positions

With this function, you can sort the programme positions to a preferable order.

1 Press MENU to display the main menu.

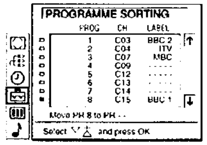
2 Select the symbol 🧰 for »Preset« with △+ or ▽− and press OK.
The PRESET menu appears.

3 Select »Programme Sorting« with △+ or ▽− and press OK.
The PROGRAMME SORTING menu appears. (See Fig. 14)

4 Using △+ or ▽− select the programme position which you want to move to another and press OK.
The colour of the selected position changes. (See Fig. 15)

5 Using △+ or ▽− select the programme position to which you want to move the channel of the programme position selected in step 4 and press OK. Now the programme positions have been sorted. (See Fig. 16)

6 Repeat steps 4 and 5 to sort other programme positions.


PROGRAMME SORTING

	PROG	CH	LABEL
▫	1	C03	BBC 2
▫	2	C04	ITV
▫	3	C07	MBC
▫	4	C09	-----
▫	5	C12	-----
▫	6	C13	-----
▫	7	C14	-----
■	8	C15	BBC 1

Move PR 8 to PR --

Select ▽ △ and press OK

Fig. 14

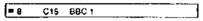
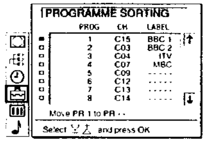

■ 8 C15 BBC 1

Fig. 15


PROGRAMME SORTING

	PROG	CH	LABEL
■	1	C15	BBC 1
▫	2	C03	BBC 2
▫	3	C04	ITV
▫	4	C07	MBC
▫	5	C09	-----
▫	6	C12	-----
▫	7	C13	-----
▫	8	C14	-----

Move PR 1 to PR --

Select ▽ △ and press OK

Fig. 16

INSTALLATION

For higher programme positions:
The display scrolls automatically.
If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to main menu:
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

How to adjust the Picture Rotation

If due to the earth magnetism the picture »slants«, you can use the function »Picture Rotation« to readjust the picture.

1 Press MENU to display the main menu.

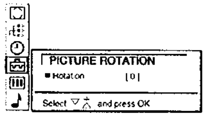
2 Select the symbol 🧰 for »Preset« with △+ or ▽− and press OK.
The PRESET menu appears.

3 Select »Installation« with △+ or ▽− and press OK.
The INSTALLATION menu appears.

4 Select »Picture Rotation« with △+ or ▽− and press OK.
The PICTURE ROTATION menu appears. (See Fig. 17)

5 Press OK. Adjust the picture rotation with △+ or ▽− until you have an upright picture. As you press the cursor buttons, the range changes from − 4 to + 4.

6 Press OK to store the adjustment.


PICTURE ROTATION

■ Rotation [0]

Select ▽ △ and press OK

Fig. 17

INSTALLATION

Using »Further Programme Preset«

Using the menu »Further Programme Preset« you can

a) in case of a strong local aerial signal (striped picture) attenuate the signal individually for each programme position (RF attenuator).

b) individually adjust and store the volume level of each channel (Volume offset).

c) in case of a strong sound signal (distorted sound), attenuate the sound signal for each programme position.

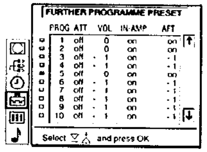
d) use the manual fine tuning to obtain a better picture reception, if the picture is distorted. Normally the AFT (automatic fine tuning) is operating.

1 Press MENU to display the main menu.

2 Select the symbol 🖭 for »Preset« with Δ+ or ∇– and press OK. The PRESET menu appears.

3 Select »Installation« with Δ+ or ∇– and press OK. The INSTALLATION menu appears.

4 Select »Further Programme Preset« with Δ+ or ∇– and press OK. The FURTHER PROGRAMME PRESET menu appears (See Fig. 18).



```
FURTHER PROGRAMME PRESET
 PROG ATT   VOL  IN-AMP   AFT
   1  off    0     on      on
   2  off    0     on      on
   3  off   -1     on      -1
   4  off   -1     on      -1
   5  off    0     on      on
   6  off   -1     on      -1
   7  off   -1     on      -1
   8  off   -1     on      -1
   9  off   -1     on      -1
  10  off   -1     on      -1
Select ∇ Δ and press OK
```

Fig. 18

5 Using Δ+ or ∇– select the desired programme position and press OK once to select a) »ATT« (RF Attenuator), twice to select b) »VOL« (Volume offset), three times to select c) »IN-AMP« (Input Amplifier) or four times to select d) AFT (Automatic Fine Tuning). The selected item changes colour.

To adjust or change:

a) **RF attenuator (ATT)**

Using Δ+ or ∇– select »On« for the selected programme position. Press OK to confirm the selection. Repeat step 5 to attenuate other programme positions.

b) **Volume offset (VOL)**

Using Δ+ or ∇– you can adjust the volume level for the selected programme position within a range from –7 to +7. Press OK to store the volume level.
Repeat step 5 to set the volume level for other programme positions.

c) **IN-AMP (input amplifier)**

Using Δ+ or ∇– select »Off« for the selected programme position. Press OK to confirm the selection. Repeat step 5 to switch off the input amplifier for other programme positions.

d) **AFT**

Using Δ+ or ∇– you can fine-tune the channel within a range from –15 to +15. Press OK to store the fine-tuned level. Repeat step 5 to fine-tune the other channels.

To reactivate AFT (Automatic Fine Tuning)
Repeat from the beginning and select »ON« in step 5.

6 Press MENU to return to the normal TV mode.

MANUAL PROGRAMME PRESET

Skipping Programme Positions

You can skip unused programme positions when selecting programmes with the PROGR +/– buttons. However, the skipped programmes may still be called up when you use the number buttons.

1 Press MENU to display the main menu.

2 Select the symbol 🖭 for »Preset« with Δ+ or ∇– and press OK. The PRESET menu appears.

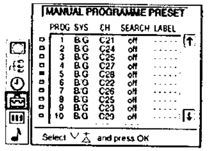
3 Select »Manual Programme Preset« with Δ+ or ∇– and press OK.
The MANUAL PROGRAMME PRESET menu appears. (See Fig.19)

4 Using Δ+ or ∇–, select the programme position which you want to skip and press OK.
The »SYS« position changes colour.

5 Press Δ+ or ∇– until »– – –« appears in the SYSTEM position. (See Fig. 20)

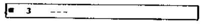
6 Press OK. (See Fig. 21)
When you select programmes using the PROGR +/– buttons, the programme position will be skipped.

7 Repeat steps 4 to 6 to skip other programme positions.



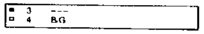
```
MANUAL PROGRAMME PRESET
 PROG SYS   CH   SEARCH LABEL
   1  B.G  C21    off   -----
   2  B.G  C24    off   -----
   3  B.G  C25    off   -----
   4  B.G  C27    off   -----
   5  B.G  C28    off   -----
   6  B.G  C22    off   -----
   7  B.G  C26    off   -----
   8  B.G  C25    off   -----
   9  B.G  C23    off   -----
  10  B.G  C20    off   -----
Select ∇ Δ and press OK
```

Fig. 19



```
■ 3   ---
```

Fig. 20



```
■ 3   ---
□ 4   B.G
```

Fig. 21

MANUAL PROGRAMME PRESET

Captioning a Station Name

Programme names are usually automatically taken from Teletext if available. You can also »name« a channel or an input video source using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. BBC1). Using this function, you can easily identify which channel or video source you are watching.

1 Press MENU to display the main menu.

2 Select the symbol 🖭 for »Preset« with Δ+ or ∇– and press OK. The PRESET menu appears.

3 Select »Manual Programme Preset« with Δ+ or ∇– and press OK.
The MANUAL PROGRAMME PRESET menu appears. (See Fig. 22)

4 Using Δ+ or ∇–, select the programme position you want to caption and press OK repeatedly until the first element of the LABEL position is highlighted.

5 Select a letter or number with Δ+ or ∇– and press OK.
The next element will be highlighted.
Select other characters in the same way. If you want to leave an element blank, select – and press OK. (See Fig. 23)

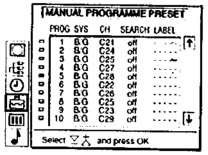
6 After selecting all the characters, press OK repeatedly until the cursor appears by the next programme position (at the left margin).
Now the caption you chose is stored. (See Fig. 24)

7 Repeat steps 5 and 6 to caption names for other channels.

If you have made a mistake:
Press ⟵ to go back to the previous position.

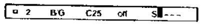
To go back to main menu:
Keep pressing ⟵.

To go back to the normal TV picture:
Press MENU.



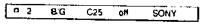
```
MANUAL PROGRAMME PRESET
 PROG SYS   CH   SEARCH LABEL
   1  B.G  C21    off   -----
   2  B.G  C24    off   -----
   3  B.G  C25    off   -----
   4  B.G  C27    off   -----
   5  B.G  C28    off   -----
   6  B.G  C22    off   -----
   7  B.G  C26    off   -----
   8  B.G  C25    off   -----
   9  B.G  C23    off   -----
  10  B.G  C29    off   -----
Select ∇ Δ and press OK
```

Fig. 22



```
□ 2   B.G   C25   off   S█---
```

Fig. 23



```
□ 2   B.G   C25   off   SONY
```

Fig. 24

PARENTAL LOCK

If you try to select a programme that has been blocked:
The message »LOCKED« appears on the blank TV screen.

Parental Lock

You can prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

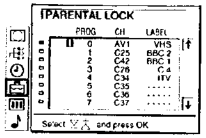
1 Press MENU to display the main menu.

2 Select the symbol 🧰 for »Preset« with Δ+ or ▽– and press OK. The PRESET menu appears.

3 Select »Parental Lock« with Δ+ or ▽– and press OK. The PARENTAL LOCK menu appears. (See Fig. 25)

4 Using Δ+ or ▽–, select the programme position you want to block and press OK. The symbol ∩ appears in front of the programme number indicating that this programme is now blocked. (See Fig. 26)

5 Repeat step 4 to block other programme positions.

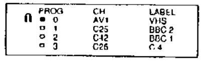


PARENTAL LOCK

	PROG	CH	LABEL
●	0	AV1	VHS
▫	1	C25	BBC 2
▫	2	C42	BBC 1
▫	3	C26	C 4
▫	4	C34	ITV
▫	5	C35	.....
▫	6	C36	.....
▫	7	C37	.....

Select ▽ Δ and press OK

Fig. 25



		PROG	CH	LABEL
∩	●	0	AV1	VHS
	▫	1	C25	BBC 2
	▫	2	C42	BBC 1
	▫	3	C26	C 4

Fig. 26

Cancelling blocking

1 On the PARENTAL LOCK menu, select the programme position you want to unblock with Δ+ or ▽–.

2 Press OK. The symbol ∩ disappears indicating that the blocking has been cancelled.

Tuning in a Channel Temporarily

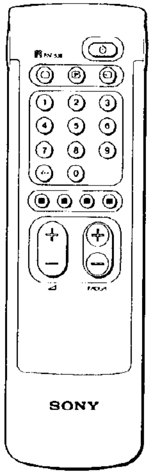
You can tune in a channel temporarily, even when it has not been preset. Use the buttons on the Full-Function side of the Remote Commander.

1 Press C on the Remote Commander. For cable channels, press C twice. The indication »C« (»S« for cable channels) appears on the screen.

2 Enter the double-digit channel number using the number buttons (e.g. for channel 4, first press 0, then 4). The channel appears. However, the channel will not be stored.

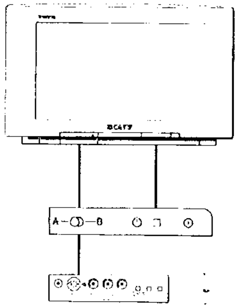
– 11 –

Watching the TV



If no picture appears when you depress ⦶ on the TV
and if the standby indicator on the TV is lit, the TV is in standby mode. Press ◯ or one of the number buttons to switch it on.

This section explains the basic functions you use while watching TV. Most of the operations can be done using the simple side of the Remote Commander.



Switching the TV on and off

Switching on

Depress ⦶ on the TV.

Switching off temporarily

Press ⏻ on the Remote Commander.
The TV enters standby mode and the standby indicator on the front of the TV lights up.

To switch on again
Press ◯, PROGR +/–, or one of the number buttons on the Remote Commander.

Switching off completely

Depress ⦶ on the TV.

Selecting TV Programmes

Press PROGR +/– or the number buttons.

To select a double-digit number

Press -/--, then the number.
For example, if you want to choose 23, press -/--, 2 and 3.

Adjusting the Volume

Press ◢ +/–.

Operating the TV Using the Buttons on the TV

- With the buttons on the TV, you can select programmes, adjust the volume, and select video input sources.
  Press P → ◢ → ⇥ button repeatedly until the programme number, ◢ (for volume), or ⇥ (for video input picture) appears. Then adjust with the –/+ buttons.
- Press –/+ buttons to switch on the TV from the standby mode.
- Press –/+ simultaneously to reset picture and sound controls to the factory preset level (RESET function).

For details of the teletext operation, refer to page 56.

For details of the video input picture, refer to page 60.

Watching Teletext or Video Input

Watching teletext

- Press ⊜ to view the teletext.
- Press three number buttons to select a page.
- Press one of the coloured buttons for fastext operation.
- Press ⊕ (PAGE +) or ⊖ (PAGE –) for the next or preceeding page.
- To go back to the normal TV picture, press ▢.

Watching a video input picture

Press ⊙ repeatedly until the desired video input appears. To go back to the normal TV picture, press ▢.

More Convenient Functions

Use the Full-Function side of the Remote Commander.

Displaying the on screen indications

- Press ⊕ once to display all the indications. They will disappear after some seconds.
- Press ⊕ twice to have the programme number and label stay on screen. Press twice again to make indications disappear.

Muting the sound.

Press 🔇.

To resume normal sound, press 🔇 again.

Displaying the time

Press ⊘. This function is available only when teletext is broadcast.

To make the time display disappear, press ⊘ again.

Displaying the Programme Table

Press OK. A Programme Table will be displayed on the left side of the TV screen (See Fig.27).

Selecting TV programmes

Press PROGR +/– or select the desired programme position using Δ+ or ∇– and press OK.

To make the Programme Table disappear, press MENU.

Freezing the Picture

When watching the TV you have the possibility to »freeze« the picture. Press ⊞. Press the button again to return to the normal TV picture.

Changing the Screen format

Press ⊟ repeatedly to change the Screen mode as follows:

4:3 (4:3 picture)

→ Smart (imitation of 16:9 for 4:3 broadcast)

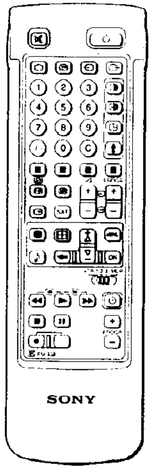
→ Zoom (imitation of 16:9 for movies broadcast in cinemascopic format)

or

→ PALplus (for PALplus broadcast)

→ Wide (for 16:9 broadcast).

See also page 54 for more information.



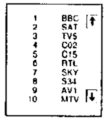
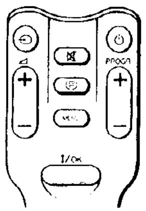
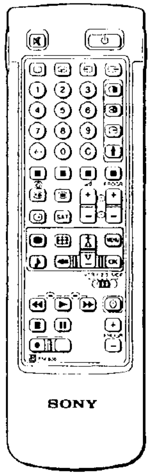

1 BBC
2 SAT
3 TV5
4 C02
5 C15
6 RTL
7 SKY
8 S34
9 AV1
10 MTV

Fig. 27



PICTURE CONTROL

SOUND CONTROL



If you have made a mistake:
Press ⬅ to go back to the previous position.
To go back to the main menu:
Keep pressing ⬅.
To go back to the normal TV picture:
Press MENU.

- Hall Surround and Dolby Pro Logic are not available via headphones.

For setting the Balance
See page 51
»Level settings«

Note on LINE OUT:
The audio level and the dual sound mode output from the ⊖ jack on the rear correspond to the HEADPHONES VOLUME and DUAL SOUND settings.

When watching a video input source with stereo sound:
You can select DUAL SOUND to change the sound.

Adjusting and Setting the TV Using the Menu

Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste. In addition, you can reduce the picture noise. You can also select dual sound (bilingual) programmes when available, adjust the sound for listening with the headphones (Ω). Also you have the possibility to adjust the sound to your individual taste using the Graphic Equalizer and special Sound effects.

1 Press ■ (for picture) or ♪ (for sound) on the Remote Commander.

or

Press MENU and select the symbol ▤ for Picture Control or ♪ Sound Control, then press OK.
The PICTURE CONTROL or SOUND CONTROL menu appears. (See Fig. 28 or Fig. 29)

2 Using Δ+ or ∇–, select the item you want to adjust and press OK.The selected item changes colour. (See Fig. 30)

3 Adjust the setting with Δ+ or ∇ – and press OK.
The cursor appears beside the next item (at the left margin). (See Fig. 31)
For the effect of each control, see the table below.

4 Repeat steps 2 and 3 to adjust other items.

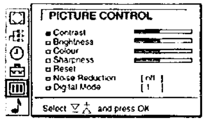

PICTURE CONTROL
■ Contrast
▫ Brightness
▫ Colour
▫ Sharpness
▫ Reset
▫ Noise Reduction [off]
▫ Digital Mode [1]
Select ∇ Δ and press OK

Fig. 28

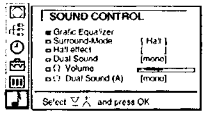

SOUND CONTROL
■ Grafic Equalizer
▫ Surround-Mode [Hall]
▫ Hall effect [ ]
▫ Dual Sound [mono]
▫ Ω Volume
▫ Ω Dual Sound (A) [mono]
Select ∇ Δ and press OK

Fig. 29

▫ Brightness

Fig. 30

▫ Brightness
■ Colour

Fig. 31

Effect of each control

PICTURE CONTROL	Effect
Contrast	Less ——I—— More
Brightness	Darker ——I—— Brighter
Colour	Less ——I—— More
Hue (only for NTSC)	Greenish — I —— Reddish
Sharpness	Softer ——I—— Sharper
Reset	Resets picture to the factory preset levels.
Noise Reduction	Off: Normal on: Reduction of picture noise in case of weak signals
Digital Mode	1: Normal 2: LFR (Line Flicker Reduction) off

SOUND CONTROL	Effect
Graphic Equalizer	(See page 52 for more information)
Surround Mode	Off: Normal → Dolby → Hall
Hall Effect (only if »Hall« is on)	Choice between different hall effects Room → Dome → Arena
Dual Sound	A : left channel B : right channel Stereo Mono The selected mode of the A-Ⓓ-B indicator on the TV lights up.
Headphones:	
Ω Volume	Less —I— More
Ω Dual Sound	A: channel 1 → B: channel 2 → PAP (if PAP is switched on you can select the PAP sound for the headphones) Stereo → Mono

Dolby Pro Logic Set Up

With Dolby Pro Logic Surround you can experience »three dimensional« sound when receiving Dolby Surround encoded programmes.
This menu enables you to adapt the Dolby Pro Logic Surround features to your individual requirements.

Adjusting the sound level of the speakers

Dolby Pro Logic uses 4 sound channels to supply 5 speakers:
Left and Right: Left and right TV speakers
Centre: Centre speaker for dialogues
Surround: Surround speakers for surround sound effect
Using »Level Settings« a noise generator enables you to adjust the sound levels of the speakers to your individual listening position. From your listening position all sound levels should be the same.

Notes:
- Make sure to connect your own or the supplied speakers to the set. (See page 39).
- Select »On« for Dolby Pro Logic when receiving Dolby Surround encoded programmes.
- This adjustment is necessary only once when you install the TV and the speakers or change their positions.

1 Press MENU, select the symbol 🧰 on the screen for »Preset« and press OK. Then select »Installation« and »Dolby Pro Logic Set Up« using Δ+ or ∇− and press OK. The DOLBY PRO LOGIC SET UP menu appears. (See Fig. 32)

2 Press OK. The cursor moves to L (sound level of the left speaker) (See Fig. 33) and you hear a test tone from the left speaker.

3

a) To change the level:
Press OK and adjust the highlighted bar by pressing Δ+ or ∇− repeatedly. Press OK to confirm the adjustment.

or

b) To go on the next bar:
Press Δ+ or ∇− to select Centre, Right or Surround. Adjust using step 3a).

4 Repeat steps 3a and b to adjust all sound levels.

5 Press ← to exit »Level Settings« and Menu to return to the normal TV screen.

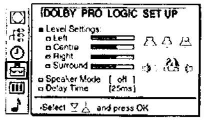

DOLBY PRO LOGIC SET UP
■ Level Settings:
□ Left
□ Centre
□ Right
□ Surround
□ Speaker Mode [off]
□ Delay Time [25ms]
Select ∇ Δ and press OK

Fig. 32

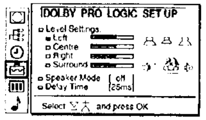

DOLBY PRO LOGIC SET UP
□ Level Settings:
■ Left
□ Centre
□ Right
□ Surround
□ Speaker Mode [off]
□ Delay Time [25ms]
Select ∇ Δ and press OK

Fig. 33

Setting Speaker Mode and Delay Time

1 Using Δ+ or ∇− select »Dolby Pro Logic Set Up« in the Installation menu and press OK.

2 Press ∇− to select »Speaker Mode« and press OK.
Using Δ+ or ∇− select
Normal: if all speakers are activated
Phantom: if the centre speaker is not used
3 stereo: if the surround speakers are not used
Press OK to confirm your selection.

3 Press ∇− to select »Delay Time« and press OK. You can select a time delay for the sound of the surround speakers which depends on your room size (e.g. 20ms for standard rooms, 30 ms for small rooms)
15 ms → 20 ms → 25 ms → 30 ms
Press OK to confirm your selection.

4 Press MENU to return to the normal TV screen.

Note: The modifications made in »USER« mode will be stored. All other settings are reset to factory-set level when you change to another mode.

Graphic Equalizer

Using this function you can individually adjust the sound by cutting and boosting selected frequencies. You can also select between the following modes:

Flat → Pop → Rock → Jazz → Vocal → User

1 Select »Sound Control« in the main menu, then select »Graphic Equalizer« using Δ+ or ∇− and press OK.
The GRAPHIC EQUALIZER menu appears (See Fig. 34).

2 Press OK. The colour of »Mode« changes. Select the desired mode with Δ+ or ∇− and press OK.

3 If you want to modify a mode, select the desired bar of a frequency band using Δ+ or ∇− and press OK. The selected frequency changes colour. Using Δ+ or ∇− adjust the level of frequency and press OK. In this way you can adjust all 5 graphic bars.

4 Press MENU to return to the normal TV mode.

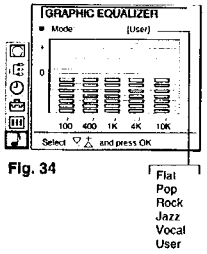

GRAPHIC EQUALIZER
■ Mode [User]
Select ∇ Δ and press OK

Fig. 34

Preset Dolby Pro Logic

To enjoy programmes encoded in Dolby Surround sound, switch on »Dolby Pro Logic« in the sound menu.

1 Press ♪ on the Remote Commander.
The SOUND CONTROL menu appears.

2 Using Δ+ or ∇− select »Surround Mode« and press OK.

3 Using Δ+ or ∇− select »Dolby« and press OK.
After the end of the broadcast make sure to return the setting to »OFF«.

TIMER

To switch off the timer:
Select »OFF« in step 3.

To check the remaining time:
Press ◷.

To go back to the normal TV picture:
Press MENU.

Using the Sleep Timer

You can select a time period after which the TV automatically switches into standby mode.

1 Using Δ+ or ∇− select the symbol ◷ for »Timer« and press OK.
The TIMER menu appears (see Fig. 35).

2 Press OK.
The time period option changes colour.

3 Select the time period with Δ+ or ∇−.
The time period (in minutes) changes as follows:
10 →20→30 →40→50→60 →70→80→90

4 After selecting the time period, press OK.
The cursor moves back to the left margin and the timer starts counting.
One minute before the TV switches into standby mode, a message is displayed on the screen.

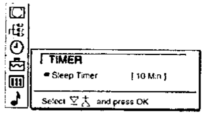
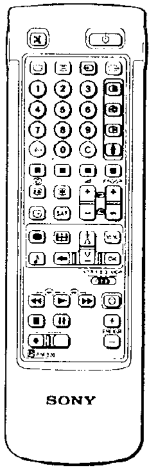

TIMER
■ Sleep Timer [10 Min]
Select ∇ Δ and press OK

Fig. 35

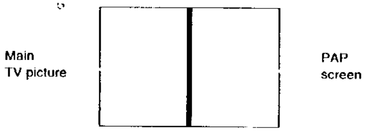
PAP (Picture and Picture)



Notes:

- RGB input source cannot be displayed in PAP.
- PAP is not available in the Zoom mode or the PALplus mode.
- The sound of the right screen is only available via the headphones.
- The picture quality of the TV screen and PAP may differ.

With this function you can display two screens at the same time. In this way you can watch two TV programmes at the same time. Also you can watch or monitor the video output from any connected equipment (for example from a VCR) while watching TV or vice versa. For information about connection of other equipment, refer to page 59.



Switching PAP on and off

Press ◨ to display the screens in 8:9 format.
Press ◨ twice to display the screens in 4:3 format.
The PAP screen will be displayed next to the main TV screen.
The PAP screen will come from the source chosen when the TV was last used.

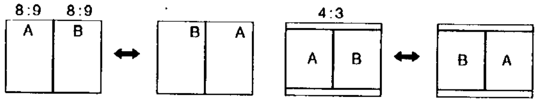
To switch PAP off
Press ◨ repeatedly.

Selecting a PAP source

Press ⇞.
The symbol ⇞ will be displayed at the bottom, left-hand corner of the screen.
Press PROGR +/–, the number buttons or ⊕ to select the desired source for the PAP screen.

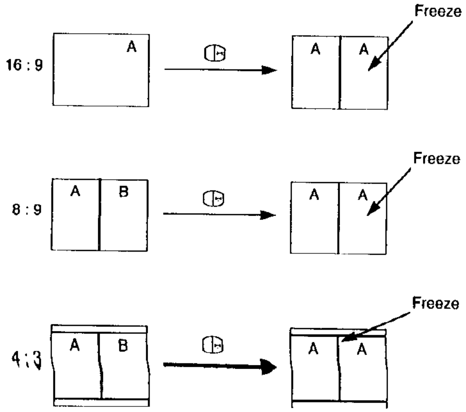
Swapping screens

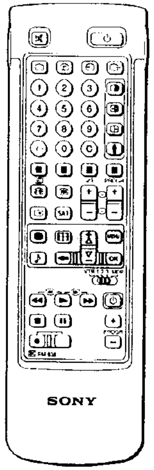
Press ⊕.
The main screen will switch the picture with the PAP screen.



Freezing the picture

You have the possibility to »freeze« the picture of the PAP screen. Press ◫ once to freeze and twice to return to the normal screen.





Operating Screen Mode/PAP using the Menu

Using the Screen Mode menu you have the possibility to change the aspect ratio for the TV display for wide screen effects, operate the PAP Mode, preset Auto Pal plus or reproduce the main picture image by image (Strobe function).

1 Press MENU to display the main menu.

2 Select the symbol [◯] for »Screen Mode« with Δ+ or ∇– and press OK. The SCREEN MODE menu appears (See Fig. 36).

You have the choice among the following modes:

4:3:	for normal ratio 4:3 (See Fig. 37).
Smart:	imitation of wide screen effect (16:9) for 4:3 broadcasts (See Fig. 38).
Zoom:	imitation of wide screen effect (16:9) for movies broadcast in cinemascopic format (See Fig. 39). or
PAL plus:	for PAL plus broadcasts.
Wide:	for 16:9 broadcasts (See Fig. 40).

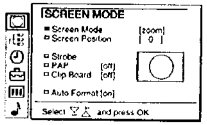
a) **Changing the Screen position (only for Zoom mode)**
When using the Zoom mode part of the picture at the top and bottom will be cut off. With the help of the function »Screen position« you can move the screen up- or downwards in order to see the cut-off part of the screen (e.g. to read the subtitles).

Using Δ+ or ∇– select »Screen position« and press OK. The selected item changes colour. Using Δ+ or ∇– adjust the screen position and press OK.

b) **Strobe Mode**
Using Δ+ or ∇– select »Strobe« and press OK. Now the TV picture is displayed image by image, creating a slow motion effect (See Fig. 41). Using Δ+ or ∇– select the speed of the motion (3 different speeds are available). Press OK to return to the normal TV mode.

c) **Switching PAP on and off**
Using Δ+ or ∇– select »PAP« and press OK. Using Δ+ or ∇– select »1« to display the PAP screen in 8:9 format, »2« for 4:3 format and »OFF« to switch it off and press OK.

d) **Freezing the PAP screen**
Using Δ+ or ∇– select »Clip Board« and press OK.
Using Δ+ or ∇– select »On« to freeze the PAP screen and »Off« to restore the normal picture.



SCREEN MODE
■ Screen Mode [zoom]
□ Screen Position [0]
□ Strobe
□ PAP [off]
□ Clip Board [off]
□ Auto Format [on]
Select ∇ Δ and press OK

Fig. 36

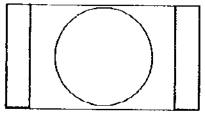


Fig. 37

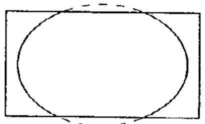


Fig. 38

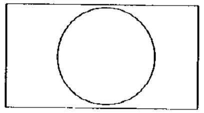


Fig. 39

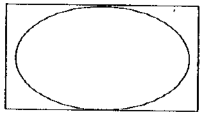


Fig. 40

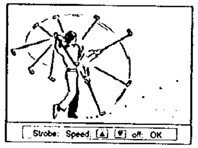
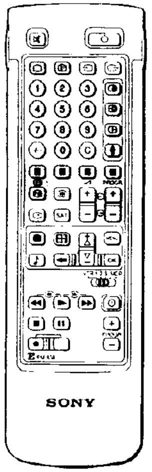


Fig. 41

Teletext



Notes:
- Teletext errors may occur if the broadcasting signals are weak.

TV stations broadcast an information service called Teletext via the TV channels. Teletext service allows you to receive various information pages such as weather reports or news at any time you want. For advanced teletext operation, use the buttons on the Full-Function side of the Remote Commander.

Direct Access Functions

Switching Teletext on and off

1 Select the TV channel which carries the teletext broadcast you want to watch.

2 Press ⊜ to switch on teletext.
A teletext page will be displayed (usually the index page). If there is no teletext broadcast, »No text available« is displayed on the information line at the top of the screen.

To switch teletext off
Press ○.

Selecting a teletext page

With direct page selection
Use the number buttons to input the three digits of the chosen page number.
If you have made a mistake, type in any three digits. Then re-enter the correct page number.

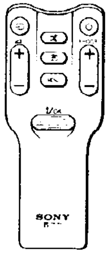
With page-catching

1 Select a teletext page with a page overview (e.g. index page).

2 Press OK. Using Δ+ or ∇–, select the desired page. »Page Catching« will be displayed on the information line. Press OK. The requested page will appear in a few seconds.

Press ⊜ to resume normal teletext reception.

Accessing the next or preceding page
Press ⊕ (PAGE +) or ⊖ (PAGE –).
The next or preceding page appears.



Note:
Fastext operation is only possible, if the TV station broadcasts Fastext signals.

Superimposing the teletext display on the TV programme

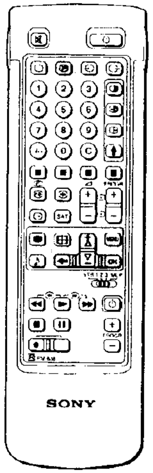
- Press ⊜ once in teletext mode or twice in TV mode.
- Press ⊜ again to resume normal teletext reception.

Preventing a teletext page from being updated

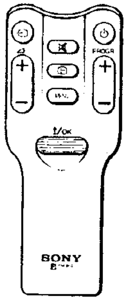
- Press ⊞ (HOLD). The HOLD symbol »⊞« is displayed on the information line.
- Press ⊜ to resume normal teletext reception.

Using Fastext

With Fastext you can access pages with one key stroke. When a Fastext page is broadcast, a colour-coded menu will appear at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue buttons on the Remote Commander.
Press the corresponding coloured button on the Remote Commander which corresponds to the colour-coded menu. The page will be displayed after some seconds.



Note:
Some of the features may not be available depending on the Teletext service.



To cancel the request:
Select »OFF« for the TIME PAGE setting.

Using the Teletext Menu

This TV is provided with a menu-guided teletext system. When teletext is switched on, you can use the menu buttons to operate the teletext menu. Select the teletext menu functions in the following way:

1 Press MENU. The menu will be superimposed on the teletext display. (See Fig. 42).

2 Using Δ+ or ∇–, select the teletext function you want and press OK. (See Fig. 43).

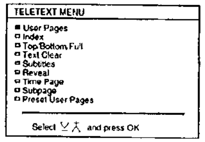


Fig. 42

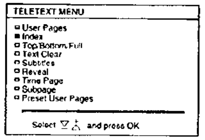


Fig. 43

USER PAGES/PRESET USER PAGES

See page 58 for information about presetting and operating the user pages.

INDEX

The index will give you an overview of the contents of the teletext and the page numbers.

TOP/BOTTOM/FULL

For convenient reading of a teletext page, you can enlarge the teletext display with the ability to scroll up and down the screen. After having selected the function, an information line Top/Bottom/Full will be displayed. (See Fig. 44).
Press Δ+ for »Top« to enlarge the upper half. For »Bottom« keep pressing ∇–, to enlarge the lower half. Press OK for »Full« to resume the normal size.
Press ⊜ to resume normal teletext reception.

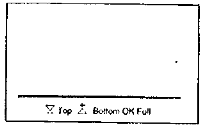


Fig. 44

TEXT CLEAR

After having selected the function, you can watch a TV programme while waiting for a requested teletext page to be captured (The symbol changes colour) (See Fig. 45).
Press ⊜ to view the requested page.

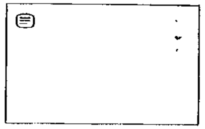


Fig. 45

SUBTITLES

Your teletext service will inform you if a TV programme is subtitled. After having selected the function the subtitles will be displayed.

REVEAL

Sometimes pages contain concealed information, such as answers to a quiz. The reveal option lets you disclose the information. After having selected the function, an information line »REVEAL ON/OFF« will be displayed. (See Fig. 46).
Using Δ+ or ∇–, select ON to reveal the information or OFF to conceal it again.
Press ⊜ to resume normal teletext reception.

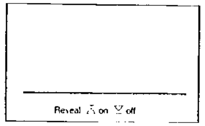


Fig. 46

TIME PAGE

Your teletext service will inform you, if a time coded page is available. You may have a page (e.g. an alarm page) displayed at a certain time.

1 Press OK. An information window will be displayed at the bottom of the page. Using Δ+ or ∇– select ON and press OK.

2 To select the desired page, enter the three digits of the page number (e. g. 301) using the number buttons.

3 To select the time, enter four digits for the desired time (e.g. 1800) using the number buttons. Press MENU. The selected time is displayed at the top in the left-hand corner.
At the requested time, the page will be displayed.
Press ⊜ to resume normal teletext mode.

To cancel the request:
Select »Subpage« and press OK.

SUBPAGE

You may want to select a particular teletext page from several subpages which are rotated automatically. After having selected the function, an information line will be displayed.

To select the desired subpage, enter four digits using PROGR+/– or the number buttons. (e.g. enter 0002 for the second page of a sequence).

User Page Bank System

You can store up to 30 pages in the »Teletext page bank system«. In this way you have quick access to the pages you watch frequently.

Storing pages

There are 5 »banks« (A to E) for 5 teletext stations. In each bank you can store 6 preferred pages (P1 to P6).

If two broadcasting stations use the same Teletext:
You can preset one bank to 2 different programme positions.

1 Press ⊜ (if Teletext is not on already) and MENU to show the TELETEXT MENU display.

2 Select PRESET USER PAGES with Δ+ or ∇– and press OK.

3 Select the desired bank with Δ+ or ∇– and press OK. The cursor will go to the first position (P1) of the preferred pages.

4 Input the three digits of your first preferred page with the number buttons and press OK.
The cursor will go to the second position.

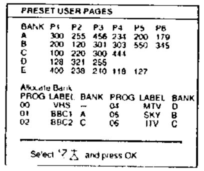
5 Repeat step 4 for the other 5 page numbers you want to preset. If you do not want to preset all 6 page numbers available, press OK without inserting any number. After having finished the presetting press OK repeatedly until the cursor appears besides the next bank at the left margin.

6 Select Allocate Bank with Δ+ or ∇– and press OK.

7 Select the programme position for which you have preset pages with Δ+ or ∇– and press OK. (See Fig. 47)

8 Select the desired bank with Δ+ or ∇– (Banks A to E are available) and press OK.

9 Repeat steps 3 to 8 for the other 4 banks available.


PRESET USER PAGES

BANK	P1	P2	P3	P4	P5	P6
A	300	255	456	234	200	179
B	200	120	301	303	550	345
C	100	220	300	444		
D	128	321	255			
E	400	238	210	118	127	

Allocate Bank

PROG	LABEL	BANK	PROG	LABEL	BANK
00	VHS	–	04	MTV	D
01	BBC1	A	05	SKY	B
02	BBC2	C	06	ITV	C

Select ∇ Δ and press OK

Fig. 47

Displaying User Pages

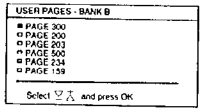
1 Select MENU.

2 Select User Pages with Δ+ or ∇– and press OK.
A table of the stored preferred pages will be displayed.
(See Fig. 48)

3 Select the desired page with Δ+ or ∇– and press OK. The page will be displayed after some seconds.

or

You can use the coloured buttons on the Remote Commander to have quick access to the first four User pages. Page 1 corresponds to the red button, P 2 to the green one, P 3 to the yellow one and P 4 to the blue button.
To select the desired page press the respective coloured button while you are in TV mode. Now the Page number of this teletext page will appear in white at the top in the left-handed corner of the TV screen. When the page number changes colour, the page is available. Press the coloured button again to display the page.


USER PAGES - BANK B

■ PAGE 300
□ PAGE 200
□ PAGE 203
□ PAGE 500
□ PAGE 234
□ PAGE 159

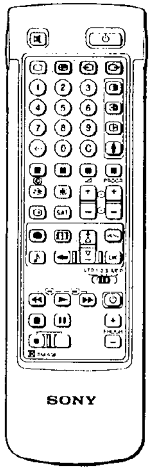
Select ∇ Δ and press OK

Fig. 48

Selecting input and output

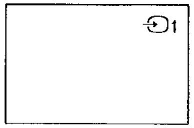
This section explains how to view the video input picture (of the video source connected to your TV), and how to select the output signal using direct access buttons or the menu system.

Selecting input with PROGR +/– or number buttons:
You can preset video input sources to the programme positions so that you can select them with PROGR +/– or number buttons.
For details, see "Preset channels manually" on page 41.



Selecting input

Press ⊕ repeatedly to select the input source.
The symbol of the selected input source will appear.



To go back to the normal TV picture
Press ○.

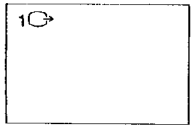
Input modes

Symbol	Input signal
⊕ 1	Audio/video input through the ⊛1 connector
⊛	RGB input through the ⊛1 connector
⊕ 2	Audio/video input through the ⇔2/Ⓢ2 connector
Ⓢ 2	S video input through the ⇔2/Ⓢ2 or Ⓢ2 connector
⊕ 3	Audio/video input through ⊕3 and ⊙3 connectors at the front
Ⓢ 3	S video input through the Ⓢ3 connectors (4-pin connector) at the front
⊕ 4	Audio/video input through the ⇔4/Ⓢ4 connector
Ⓢ 4	S video input through the ⇔4/Ⓢ4 or Ⓢ4 connector (4-pin connector)

Selecting the output

The ⇔2/Ⓢ2 connector outputs the source input from the other connectors.

Press ⇨ repeatedly to select the output.
The symbol of the selected output source appears.



Output modes

Symbol	⇔2/Ⓢ2 connector outputs
1 ⇨	The audio/video signal from the ⊛1 connector
2 ⇨	The audio/video signal from the ⇔2/Ⓢ2 connector
2 Ⓢ⇨	The audio/video signal from the ⇔2/Ⓢ connector
3 ⇨	The audio/video signal from the ⊕3, ⊙3 connectors
3 Ⓢ⇨	The audio/video signal from the Ⓢ3, ⊙3 connectors
4 ⇨	The audio/video signal from the ⇔4/Ⓢ4 connector
4 Ⓢ⇨	The audio/video signal from the ⇔4/Ⓢ4 connector
TV⇨	The audio/video signal from the Ͳ aerial terminal

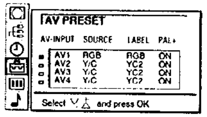
Using AV Preset

Using this function you can preset the desired input source (e.g. ⊛1, RGB signal) to the respective AV input (AV 1⊛).
In this way a connected VTR will automatically switch to the RGB signal.

1 Select the symbol ⌸ for »Preset« with Δ+ or ∇– and press OK.

2 Select first »Installation«, then »AV Preset« with Δ+ or ∇– and press OK.
The AV PRESET menu appears (See Fig. 49).

3 Select the desired AV input with Δ+ or ∇– and press OK.


AV PRESET

AV-INPUT	SOURCE	LABEL	PAL+
■ AV1	RGB	RGB	ON
□ AV2	Y/C	YC2	ON
□ AV3	Y/C	YC2	ON
□ AV4	Y/C	YC2	ON

Select ∇ Δ and press OK

Fig. 49

4 Select the desired source with Δ+ or ∇− and press OK.
For the respective AV inputs you have the following possibilities:

AV 1	RGB or AV	AV 3	YC3 or AV
AV 2	YC2 or AV	AV 4	YC or AV

5 If you want to name the AV input select »Label« using Δ+ or ∇− and press OK. Select a letter or a number with Δ+ or ∇− and press OK. The next element will be highlighted. Select other characters in the same way. If you want to leave an element blank, select − and press OK.
After having selected all the characters, press OK repeatedly until the cursor appears by the next AV input at the left margin.

6 If you want to preset PAL plus selection for a AV input, select PAL + with Δ+ or ∇− and press OK.
Using Δ+ or ∇− select »On« if PAL plus should be selected automatically, or »Off« if not. Press OK to confirm the selection.

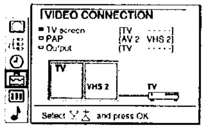
7 Repeat steps 3 to 6 for the other AV inputs.

Checking and selecting the input and output sources using the menu

You can display the menu to see which input sources are selected for the TV screen and PAP screen, and which output source is selected. You can also select them on the menu display.

1 Select the symbol ⚙ for »Video Connection« with Δ+ or ∇− and press OK. The VIDEO CONNECTION menu appears. (See Fig. 50)

You can see which source is selected for the TV and PAP input, and for the output. If you want to select the input and output on this menu, go on to the next step.


VIDEO CONNECTION

■ TV screen [TV -----]
□ PAP [AV 2 VHS 2]
□ Output [TV -----]

Select ∇ Δ and press OK

Fig. 50

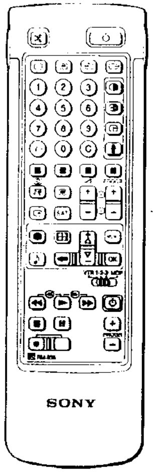
2 Select TV Screen (input source for the TV screen), PAP(input source for the PAP screen), or output (output source) with Δ+ or ∇− and press OK. One of the source items changes colour.

3 Select the desired source with Δ+ or ∇−.
For details about each source, see the table on page 60.

4 Press OK.
The selected source is confirmed, and the cursor appears.

5 Repeat steps 2 to 4 to select the source for other inputs or outputs.

Remote Control of Other Sony Equipment



You can use the TV Remote Commander to control other Sony remote- controlled video equipment. The buttons for video operation have been factory-set to control most of Sony video equipment, such as: Beta, 8mm or VHS VCRs or video disc players.

Tuning the Remote Commander to the equipment

1 Set the VTR 1/2/3 MDP selector according to the equipment you want to control:

VTR 1: Beta VCR

VTR 2: 8mm VCR

VTR 3: VHS VCR

MDP: Video disc player

2 Use the buttons indicated in the illustration to operate the additional equipment.

If your video equipment is furnished with a COMMAND MODE selector: set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander.

If the equipment does not have a certain function, the corresponding button on the Remote Commander will not operate.

When recording
When you use the ● (record) button, make sure to press this button and the one to the right of it *simultaneously.*

For Your Information

Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press ⏻ on the TV. (If ⏻ indicator is on, press ○ or a programme number on the Remote Commander.) • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds and then turn it on again using ⏻.
Poor or no picture (screen is dark), but good sound	• Press ● to enter the PICTURE CONTROL menu and adjust »Brightness«, »Contrast« and »Colour«.
Poor picture quality when watching an RGB video source	• Press ⊕ repeatedly to select ⊕.
Poor picture quality of PAP screen	• Press ⊕.
Good picture but poor or no sound	• Press ◿ +. • If 🔇 is displayed on the screen, press 🔇. • Check the connections of the loudspeakers.
No colour for colour programmes	• Press ● to enter the PICTURE CONTROL menu, select RESET, then press OK.
Remote Commander does not function.	• Replace batteries.

If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

Auto PAL plus

PAL plus is a new broadcasting system with the following features:

- Backward compatibility to the PAL standard
- Broadcasting in 16:9 format
- Improved video signal quality (The resolution is 576 lines against 432 lines in conventional 16:9 programmes)

If you preset AUTO PAL plus to ON and the PAL plus signal is being transmitted, the screen mode automatically changes from any mode to the PAL plus mode (See page 52). When the PAL plus programme is finished, the screen mode automatically returns to the previous mode.

1 Press MENU to display the main menu.

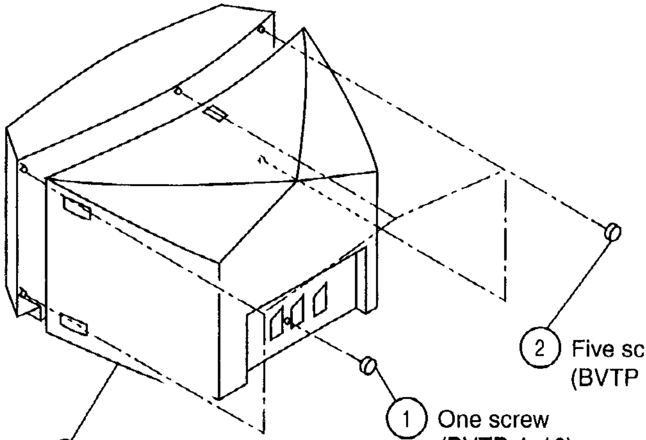
2 Select the symbol ▭ for »Screen Mode« with Δ+ or ∇− and press OK. The SCREEN MODE menu appears.

3 Select »Auto Format« with Δ+ or ∇− and press OK.

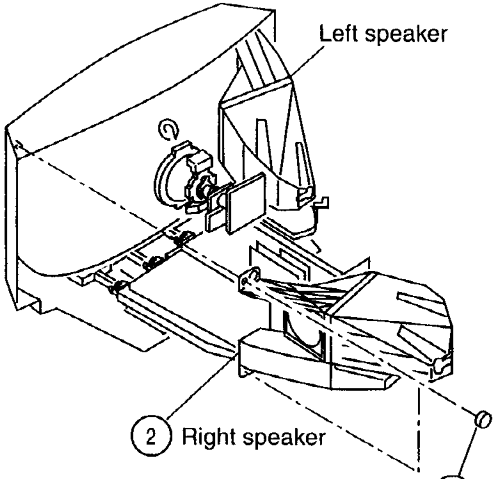
4 Select ON or OFF with Δ+ or ∇− and press OK.

SECTION 2
DISASSEMBLY

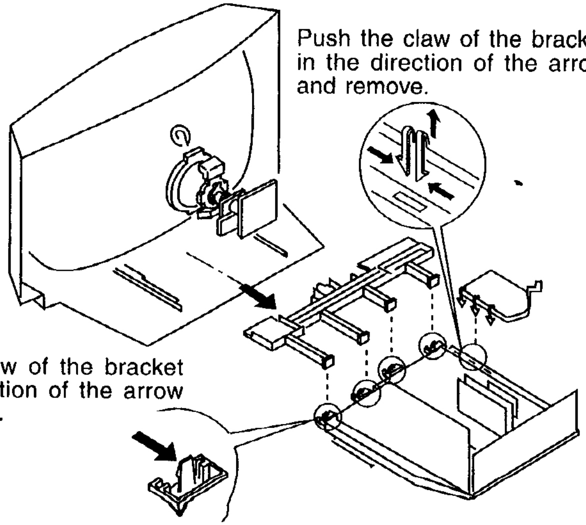
2-1. REAR COVER REMOVAL


② Five screws
(BVTP 4x16)
① One screw
(BVTP 4x16)
③ Rear cover

2-2. SPEAKER REMOVAL


Left speaker
② Right speaker
① Two screws (BVTP 4x16)
and one washerhead screw

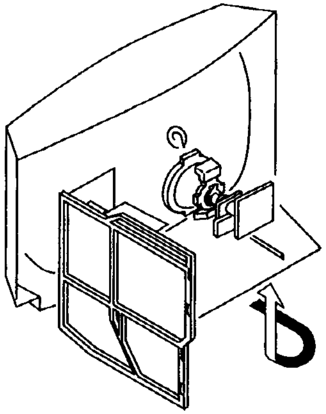
2-3. CHASSIS ASSY, H AND T BRACKET REMOVAL



Push the claw of the bracket in the direction of the arrow and remove.

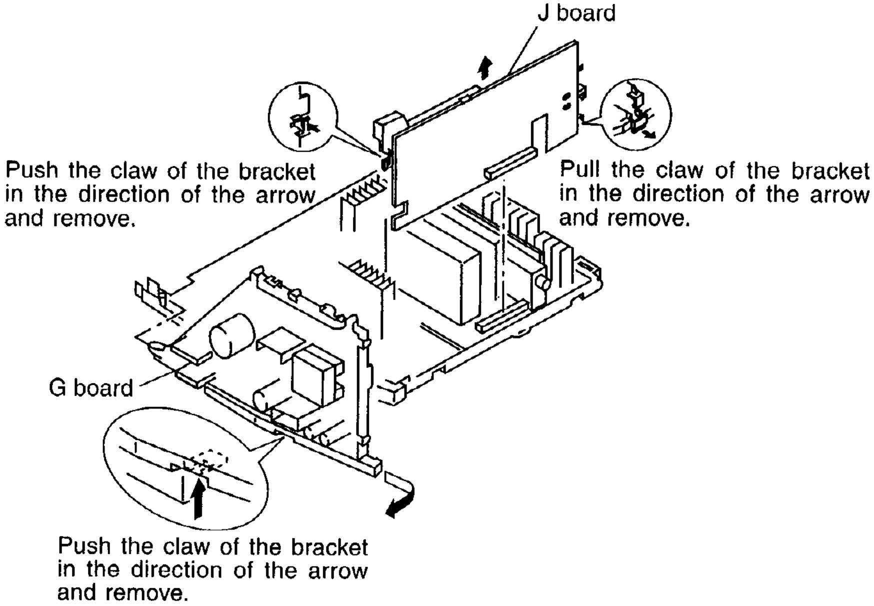
Pull the claw of the bracket in the direction of the arrow and remove.

2-4. SERVICE POSITION



SECTION 2
DISASSEMBLY

2-5. G AND J BOARD REMOVAL

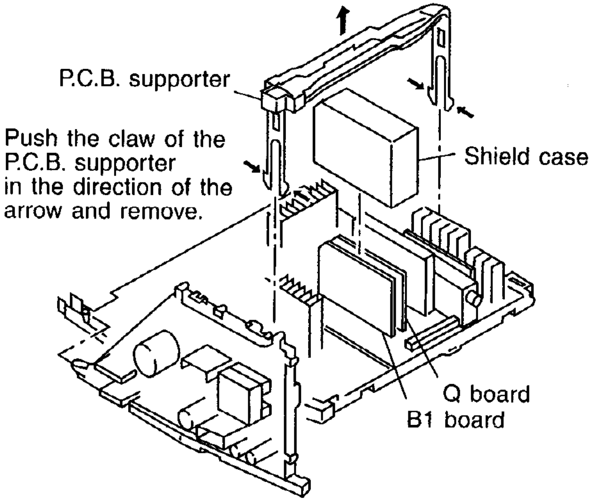

J board
G board

Push the claw of the bracket in the direction of the arrow and remove.

Pull the claw of the bracket in the direction of the arrow and remove.

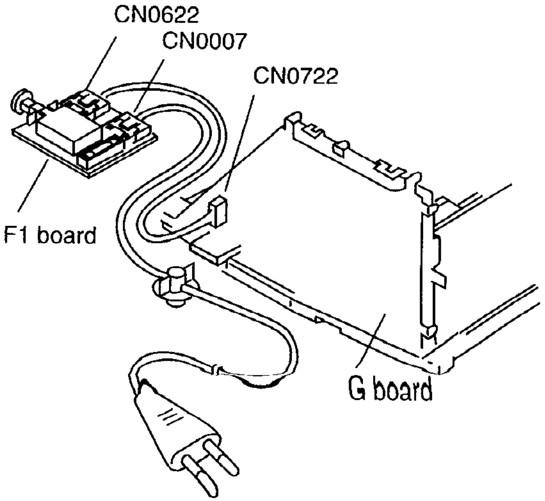
Push the claw of the bracket in the direction of the arrow and remove.

2-6. B1 AND Q BOARD REMOVAL (KV-28WS3A, D, E, K and U only)

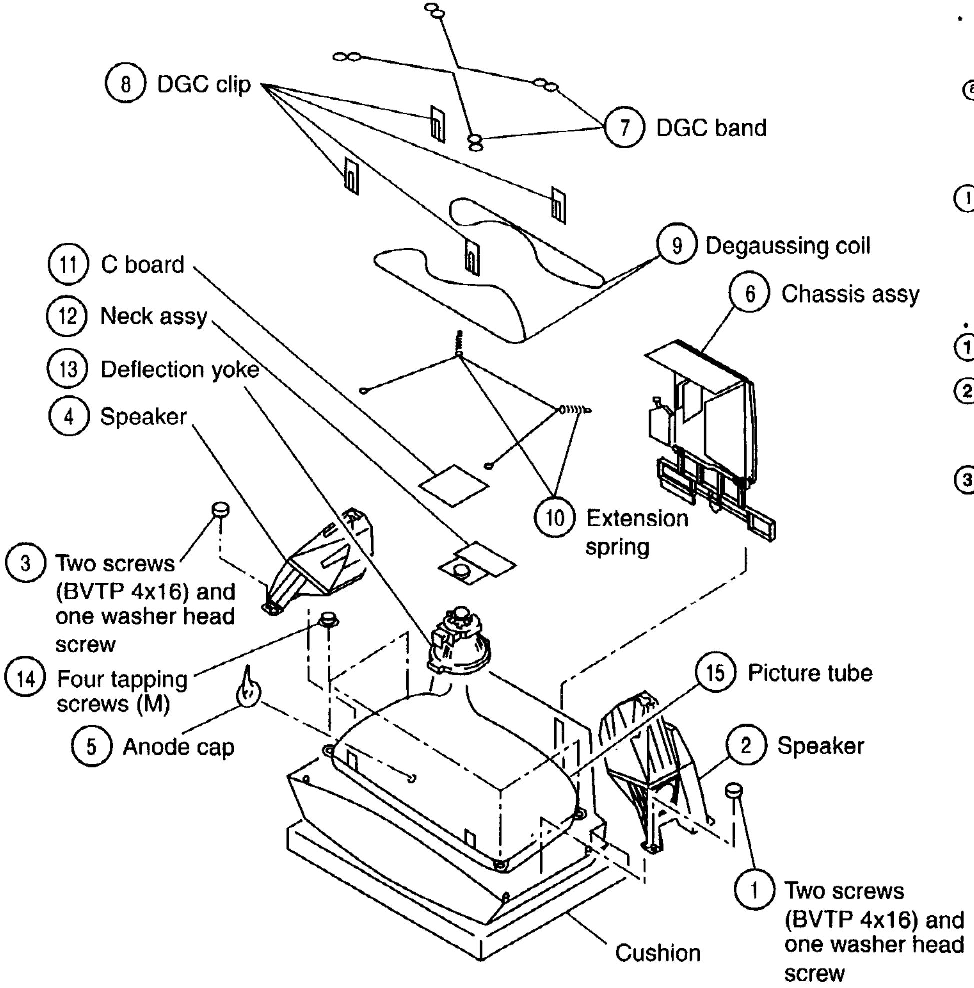

P.C.B. supporter
Shield case
Q board
B1 board

Push the claw of the P.C.B. supporter in the direction of the arrow and remove.

2-7. WIRE DRESSING


CN0622
CN0007
CN0722
F1 board
G board

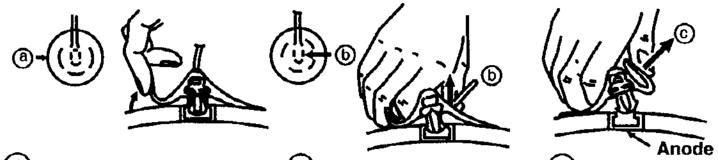
2-8. PICTURE TUBE REMOVAL


⑧ DGC clip
⑦ DGC band
⑨ Degaussing coil
⑥ Chassis assy
⑪ C board
⑫ Neck assy
⑬ Deflection yoke
④ Speaker
⑩ Extension spring
③ Two screws (BVTP 4x16) and one washer head screw
⑭ Four tapping screws (M)
⑤ Anode cap
⑮ Picture tube
② Speaker
① Two screws (BVTP 4x16) and one washer head screw
Cushion

• REMOVAL OF ANODE-CAP

Note : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

• REMOVING PROCEDURES.


ⓐ
ⓑ
ⓑ
ⓒ
Anode button

① Turn up one side of the rubber cap in the direction indicated by the arrowⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrowⓑ

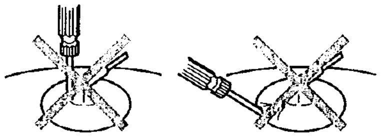
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrowⓒ

• HOW TO HANDLE AN ANODE-CAP

① Don't damage the surface of anode-cap with sharp shaped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built into the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or damage the rubber.



SECTION 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustment with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches as follows.

Contrast .... normal
Brightness .... normal

- Carry out the following adjustments in this order:

3-1. Beam landing
3-2. Convergence
3-3. Focus
3-4. White balance

Note: Testing equipment required.
1. Colour bar/pattern generator
2. Degausser
3. Vector scope

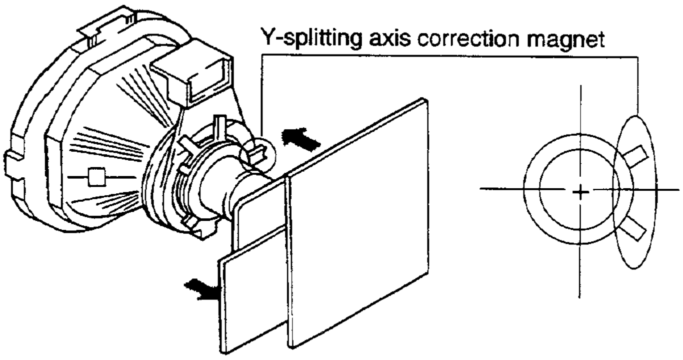
3-1. BEAM LANDING

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

(1) Adjustment of Correction Magnet for Y-Splitting Axis

1. Input a crosshatch signal from the pattern generator.
2. Picture control is minimum and brightness control is still normal.
3. Position the neck assy as shown in Fig. 3-2.
4. Move the deflection yoke forward to touch the CRT.
5. Adjust the upper pin and the lower pin symmetrically by opening or closing the Y-splitting axis correction magnets on the neck assy.
6. Return the deflection yoke to its original position.



(2) Landing

Note: Before carrying out the following adjustments adjust the magnets as indicated below (See Fig.3-3).

1. Input an all-white signal from the pattern generator. Maximize the picture setting and adjust the brightness setting.
2. Rough-adjust the focus and horizontal convergence.
3. Loosen the deflection yoke screws, align the purity adjustment knob to the central position. (See Fig. 3-1)
4. Switch from the all-white pattern to an all-green pattern.
5. Move the deflection yoke backwards and adjust with the purity magnet so that the green is at the center and it aligns symmetrically. (See Fig. 3-4)
6. Move the deflection yoke forward and adjust so that entire screen becomes green.
7. Switch the raster signal to red, then to blue and verify the landing condition.
8. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screw.
9. If the beam does not land correctly in all the corners, use magnets to correct it. (See Fig. 3-5)

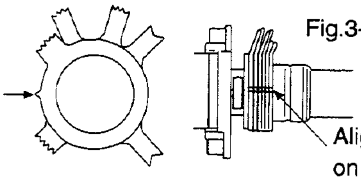


Fig.3-3

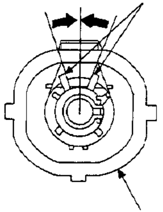
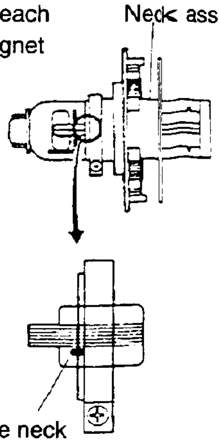


Fig.3-1



Align the bottom edge of the neck assy with the G3 hole center.

Fig.3-2

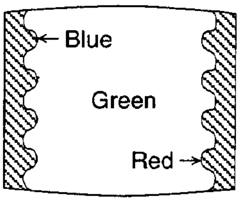

Blue
Green
Red

Fig.3-4

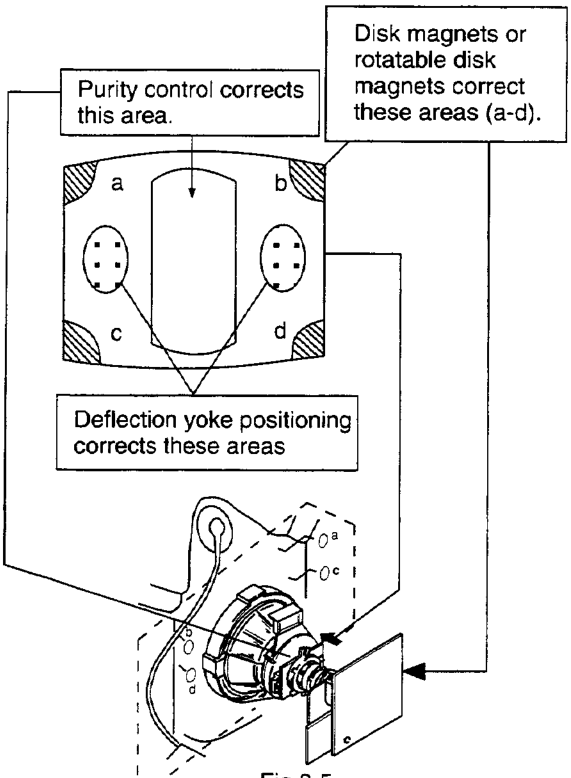
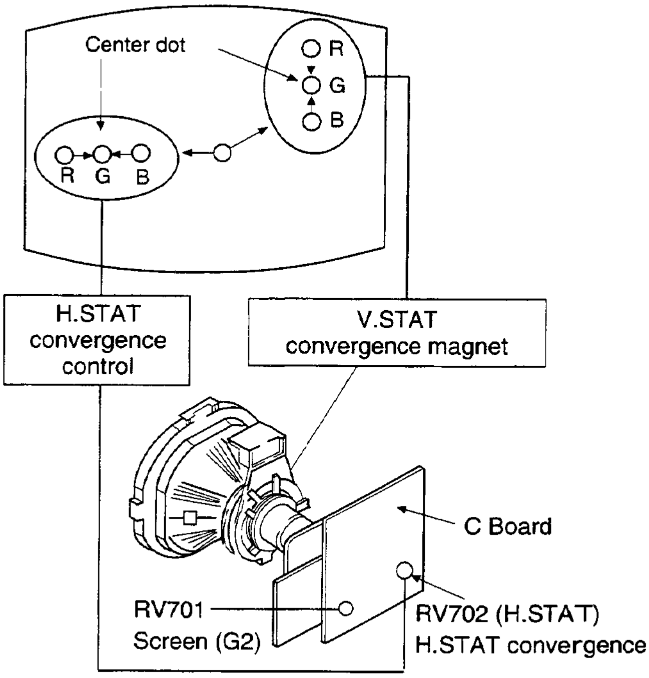

Purity control corrects this area.
Disk magnets or rotatable disk magnets correct these areas (a-d).
a
b
c
d
Deflection yoke positioning corrects these areas

Fig.3-5

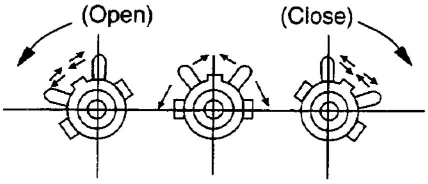
3-2. CONVERGENCE

(1) Screen center convergence (Static convergence)

1. Input a dot signal from the pattern generator. Normalize the picture setting.
2. (Moving horizontally), adjust the H.STAT control so that the horizontal red, green and blue dots coincide at the center of screen.
3. (Moving vertically), adjust the V.STAT magnet so that the vertical red, green and blue points coincide at the center of screen.

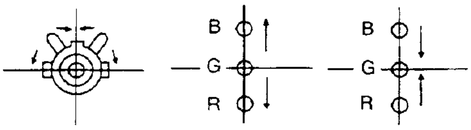

Center dot
R
G
B
R G B
H.STAT convergence control
V.STAT convergence magnet
C Board
RV701
Screen (G2)
RV702 (H.STAT)
H.STAT convergence

- If the horizontal dots are unable to coincide with the variable range of the H.STAT convergence, adjust together with the V.STAT convergence while tracking.
  (Adjust the convergence by tilting the V.STAT convergence or by opening or closing the V.STAT convergence.)

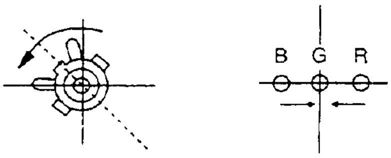


4. Movement of the red, green and blue dots by tilting the V.STAT magnet and by opening or closing the V.STAT magnet.

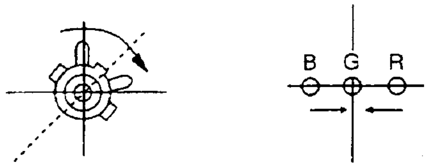
① By opening or closing the V.STAT magnet, the red, green and blue points move as shown below



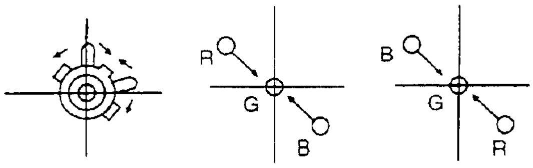
② By rotating the V. STAT magnet counterclockwise, the red, green and blue dots move as shown below.



③By rotating the V.STAT magnet clockwise, the red, green and blue dots move as shown below.



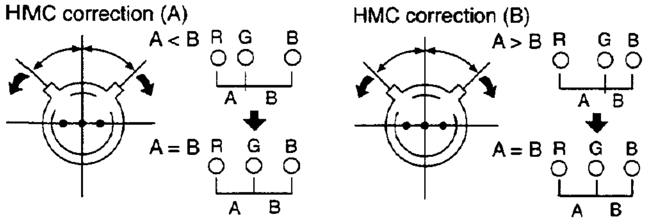
④By opening or closing the V.STAT magnet, the red, green and blue dots move as shown below.



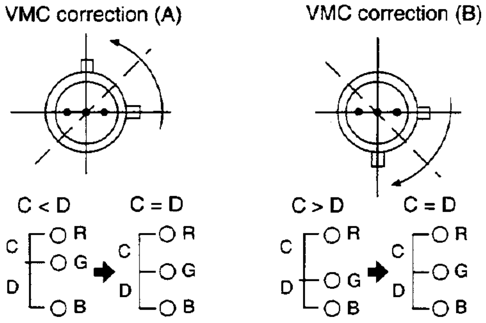
- If the blue dot does not coincide with the red and green points, correct the points by using the BMC (Hexapole) magnet.

⑤Correction for HMC (horizontal mis-convergence) and VMC (vertical mis-convergence) by using the BMC (Hexapole) magnet.

①HMC correction by BMC (Hexapole) magnet and movement of the electronic beam.


HMC correction (A)
A < B R G B
A B
A = B R G B
A B
HMC correction (B)
A > B R G B
A B
A = B R G B
A B

②VMC correction by BMC (Hexapole) magnet and movement of the electronic beam.


VMC correction (A)
C < D
C = D
C
D
R
G
B
R
G
B
VMC correction (B)
C > D
C = D
C
D
R
G
B
R
G
B

Layout of each control

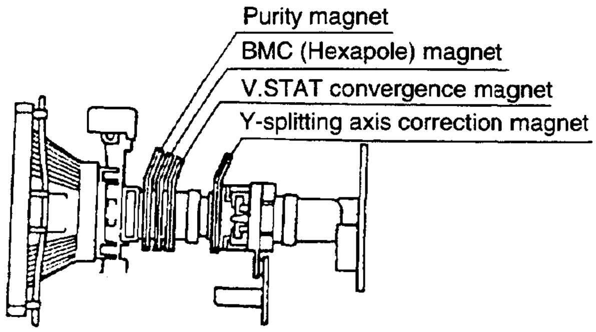
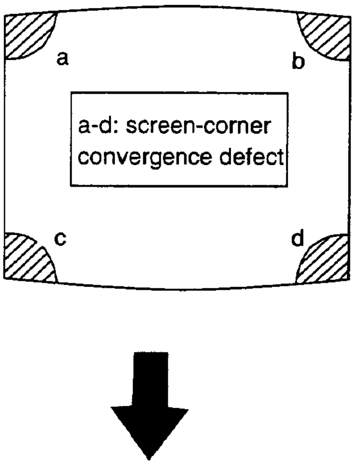
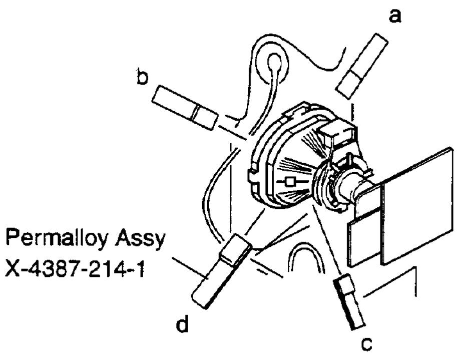

Purity magnet
BMC (Hexapole) magnet
V.STAT convergence magnet
Y-splitting axis correction magnet

Fig.3-5

- If you are unable to adjust the corner convergence properly, correct them with the use of permalloys.

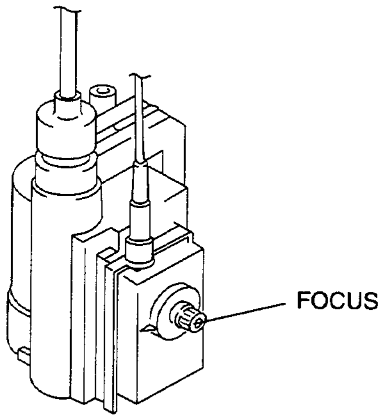

a
b
c
d
a-d: screen-corner convergence defect


a
b
c
d
Permalloy Assy
X-4387-214-1

Convergence adjustment with permalloy

3-3. Focus

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control on the flyback transformer for the best focus at the center of the screen.
   Bring only the center area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-4. Screen (G2), White balance (Adjustment in the service mode with remote commander)

G2 adjustment (RV702)

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 170V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control RV701 [SCREEN] on the C board to the point just before the return lines disappear.

White balance adjustment

1. Receive an all-white signal.
2. Enter into the Service Mode by pressing ' TEST ', ' TEST ' and ' 01' on the Service Commander.
3. Select ' CRT Driver ' from the on screen menu display and press OK .
4. The 'CRT Driver CXA1840' menu will appear on screen.

CRT Driver CXA 1840

Crt Driver		CXA1840
21	R DRIVE	41
22	G DRIVE	adj
23	B DRIVE	adj
24	R CUT-OFF	8
25	R C	0
26	G CUT-OFF	adj
27	G C	0
28	B CUT-OFF	adj
29	B C	0
30	AFC MASK	0
31	DRIVE LVL	52
32	SUB BRT	32
33	H SWEEP SW	on
34	SKEW D	off
35	OUT DC	0

5. Set picture to MAX.
6. Set the ' R DRIVE ' to 41.
7. Adjust the ' G DRIVE ' and ' B DRIVE ' with the ▲ ▼ buttons so that the white balance becomes optimum.
8. Press the OK button to write the data for each item.
9. Set picture to MIN.
10. Adjust ' R CUT-OFF ', ' G CUT-OFF' and ' B CUT-OFF ' with the ▲ ▼ buttons so that the white balance becomes optimum.
11. Press the OK button to write the data for each item.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander, RM-838.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing the + (plus) and - (minus) buttons on the customer front panel.

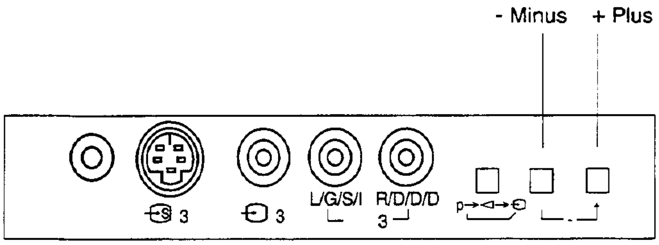
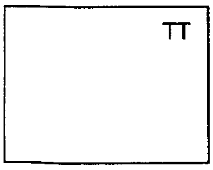


Fig. 4-1

2. "TT" will appear on the upper right corner of the screen.

Command operation in service mode



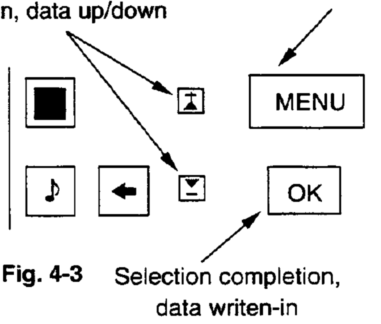


Fig. 4-2 **Fig. 4-3**

3. Press "Test" " "Test" and 01 on the commander to get the menu on screen.

AE — V7-62	AE-3	08/06/95
Init TV		
PIP Adjust		
Adjustments		
Video Contr		
CRT Driver		
Dynamic Conv		
Video Proc		
PIP		
PIP Dynamic		
Aspect / Field		
PAP		
SRC		
TDA6812		
PALPLUS		
TDA9160		
TDA9145		

4. Press the ⤒ and ⤓ buttons on the remote commander to select the adjustment item.
5. Press the OK button to proceed to the next menu.
6. If the adjustment item is 'CRT Driver', press the ⤓ button to move to 'CRT Driver'.
7. The Menu as indicated in Fig 4-5 will appear on the screen.

	CRT Driver	CXA1840
1	V POS	adj
2	V SIZE	adj
3	V LIN BAL	adj
4	V LIN	adj
5	V SCROLL	127
6	V ASP PAP	2
7	H POS	adj
8	H SIZE	adj
9	H PIN CUSH	adj
10	H TILT	adj
11	H UP COR	adj
12	H LOW COR	adj
13	AFC V BOW	adj
14	AFC V ANGLE	adj
15	V COMP	5

⬅ Back   OK Select

Fig. 4-4

8. Press the ⤓ button to move > to the adjustment item and press the OK button.
9. Press the ⤒ and ⤓ buttons to change the data in order to comply with each standard.
10. Press the OK button to write data into memory.
11. Turn off the power to quit the service mode when adjustments have been completed.

CXA1839 (VIDEO CONT)

Item No	Adjustment item	Data Amount
1	SUB BRT	8
2	SUB COL1	8
3	SUB CONT1	8
4	PIC	53
5	HUE	31
6	COL	31
7	BRT	31
8	SHP	31
9	SUB HUE	7
10	D.COIL	off
11	SHP LIM	off
12	AGE WHT	off
13	R-Y/R	13
14	R-Y/B	15
15	G-Y/R	7
16	G-Y/B	5
17	RGB LEV2	8
18	SUB SHP	3
19	SUB FO	1
20	PRE/OVER	0
21	NR LEVEL	1
22	DC TRAN	0
23	DYN PIC	1
24	CEC LEVEL	2
25	VM LEVEL	2
26	ABL MODE	1
27	DYN ABL	off
28	Y SYM SW	off
29	AGE BLK	off

CXD2035 (ASPECT)

Item No	Adjustment item	Data Amount
1	COMPRESS	7
2	FRAME WID	5

CXD2030 (VIDEO PROCESSOR)

Item No	Adjustment item	Data Amount
1	DNR	on
2	DNR VALUE	5
3	TA SYN CLP	16
4	TB BGP	50
5	TD CLP	25
6	FOTO CD SW	off
7	BLK PORCH	16
8	NT TD BGP	25
9	PAL TD BGP	25
10	N.SECAM TB	50
11	SECAM TB	50
12	358 NR LVL	3
13	443 NR LVL	5

CXD2031 (PAP)

Item No	Adjustment item	Data Amount
1	M.PH.WR.ST	45
2	S.PH.WR.ST	34
3	M.RD. START	40
4	BRT SUB	8

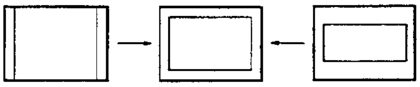
Typical Value (OSD based) when receiving PAL Philips pattern.

DEFLECTION SYSTEM ADJUSTMENT

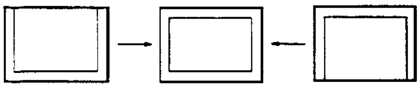
1. Enter into the service mode and select 'CRT Driver'.The 'CRT Driver CXA1840' adjustment menu will be displayed.
2. Select and adjust each item in order to get an optimum image.

Item No	Adjustment item	Data Amount
1	V POS	adj
2	V SIZE	adj
3	V LIN BAL	adj
4	V LIN	adj
5	V SCROLL	127
6	V ASP PAP	2
7	H POS	adj
8	H SIZE	adj
9	H PIN CUSH	adj
10	H TILT	adj
11	H UP COR	adj
12	H LOW COR	adj
13	AFC V BOW	adj
14	AFC V ANGLE	adj
15	V COMP	5
16	H COMP	0
17	WV CENT RF	144
18	WV AREA RF	36
19	W CENT VCR	160
20	W AREA VCR	20

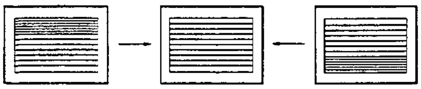
V SIZE



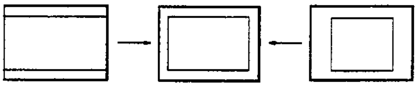
V POS



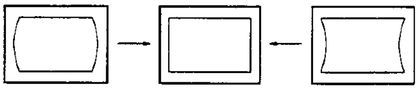
V LIN



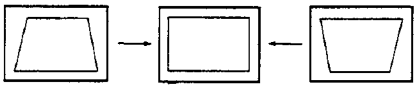
H SIZE



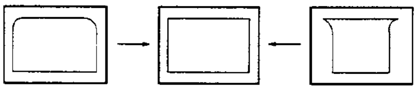
H PIN CUSH



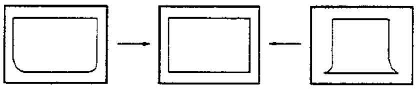
H TILT



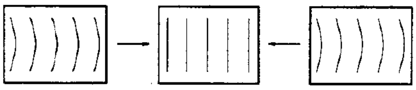
H UP COR



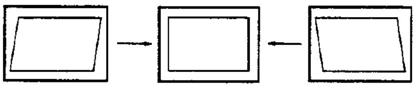
H LOWER COR



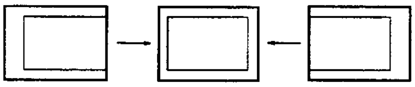
AFC V BOW



AFC V ANGLE



H POS



3. Press OK button to write the data.

If the menu display prevents viewing the screen while carrying out the adjustments, it can be removed by pressing 🔇 on the remote commander. Pressing 🔇 once again will restore the menu on screen.

4-2. VOLUME ELECTRICAL ADJUSTMENTS

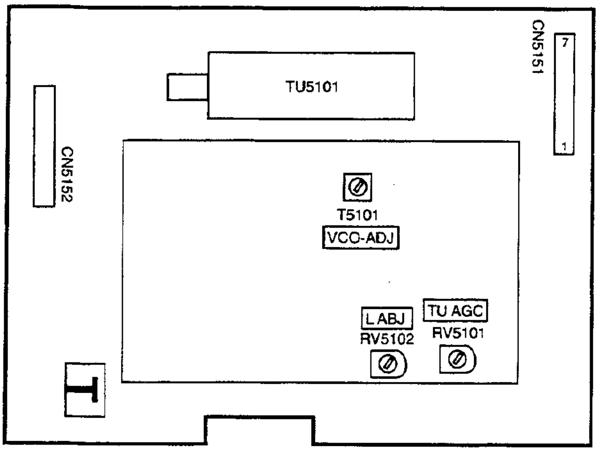


Fig. 4-5 - T Board Component Side -

IF Coil Adjustments (T5101) A, B, D, E, K and L models

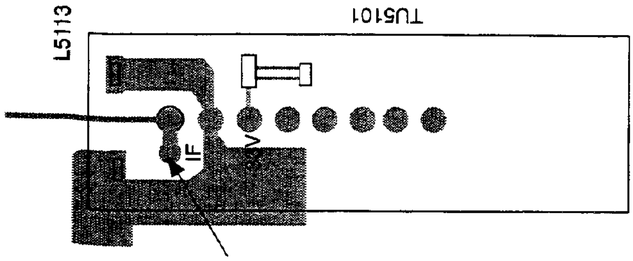
1. Input a 38.9Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for system B/G.
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5101 to obtain 2.5V+/-0.2V.

IF Coil Adjustment (T5101) UK models only.

1. Input a 39.5Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for system I.
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5101 to obtain 2.5V+/-0.2V.

L Band 1 Adjustment (RV5102) for B models only

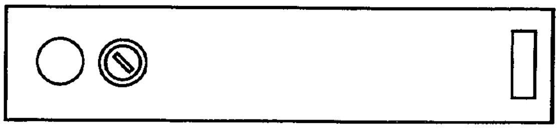
1. Input a 34.1Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for (System L Band 1).
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5102 to obtain 2.5V+/-0.2V.



IF TEST POINT

Fig. 4-6

AGC Adjustment (IF Block)



- IF Block top side -

Fig. 4-7

1. Receive an off-air signal.
2. Adjust the AGC VR so that there is no snow noise and cross-modulation visible on the screen.
3. Change the receiving channel and confirm status.

Sub Brightness Adjustment

1. Input a Phillips pattern.
2. Select 'RESET' from the menu to normalize the set.
3. Set the CONTRAST to minimum.
4. Press "Test" "Test" and 01 on the remote commander.
5. Adjust the BRIGHTNESS with the +/- buttons on the remote commander after selection of 'Sub Bright' so that the 0 IRE section of the gray scale is completely cut off and the 20 IRE section is only just visible on the screen.
6. Press 'MENU' and '0' twice to release Test mode 2.
7. Select 'RESET' from the menu to normalize the set.

Picture Rotation Adjustment

1. Input a PAL color bar signal.
2. Press the MENU button on the commander to get the menu on screen.
3. Press the ▲ and ▼ buttons of the commander and move > to PRESET/TIMER followed by INSTALLATION and PICTURE ROTATION.

PRESET/TIMER
TIMER
•
•
•
> INSTALLATION
Select < > and press OK.

→

INSTALLATION
FURTHER PRO
•
•
•
PICTURE ROTATION
Select < > and press O K.

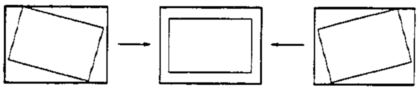


Fig. 4-8

4-3. TEST MODE 2:

Is available by pressing the Test button twice, OSD "TT" appears. The functions described below are available by pressing the two numbers. To release Test Mode 2, press 0, 10, 20 ... twice or switch the TV into Standby Mode. Pressing the two Local Control buttons (+ and –) during Power ON will also switch into "TT" mode.

In TT mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the menu to reappear . The Function is kept even when the menu is not displayed!!

00	Switch back to normal mode - TT mode off
01	Switch service menu on
02	Direct access to Noise reduction
03	Set Volume to 30%
04	Service Menu in "Service Mode"
05	Service Menu in "Production Mode"
06	Set Volume to 80%
07	Aging mode
08	Shipping condition (Production request) To ensure that all TV sets leave the Production with the same pressettings. Programme 1 is selected, AV IN is set to AV1, AV Out is set to TV Out, Volume and HP Volume is set to 35%, Resolution is set to high, Format is set to 4:3, Pip is set to Top Left position, Pip is switched off, TT mode is switched off, all analogue values are set to the reset setting, space Sound - Equalizer - Loudness = off, DNR off, Dig. Mode = 1, Wide Zoom Mode for 28W models, Menu Language Reset, Prog. Pointer table reset Non Interlace is allowed in Text mode.
09	Language reset. With this function the "Language Byte" in the NVM (Bank 0AAH Address 0DCH) is erased (set to 0FFH). The Language Menu appears now automatically when the TV set is switched ON as long as no new language is selected.
10	The TT number will be deleted. All numbers with 0 (10, 20, 30, 40, 50, 60, 70, 80, 90) will reset the TT number. A new number can be selected. TT display is kept
11	Direct access to Balance. With Cursor Up/Down the Balance can be controlled (w/o OSD, Menu display)
12	Direct access to Hue. With Cursor Up/Down the Hue can be controlled (w/o OSD, Menu display)
13	Dispaly of Software Version and TV set configuration
14	Production Info Display
15	Read factory setting from ROM (Program code) and store this data at Last Power Memory data location (The previous last power memory data is overwritten) AE3 has 3 packages of Analogue data: 1. Last Power memory data. This data is sent continiously to the corresponding IC's (TDA1839, SC, TDA6812) with this data the TV picture/sound appears. 2. Reset data. By presssing "Reset" in the menu this data is transfered from Reset Data location to the Last Power data location in the NVM. That means the Last Power Memory Data is overwritten by the Reset data last Power memory and Reset data is now the same. 3. Factory fixed data. Fixed data is held in the ROM code of the micro processor (ROM can't be changed)

16	Save actual Last Power Memory data at Reset Data location)The previous Reset data is overwritten)
15/16	With these two functions, it is possible to preset user defined Reset values (just TT16) or to preset factory defined Reset values (first TT15 then TT16)
17	This function presets the Labels for the AV sources: AV1, RGB, AV2, YC2, AV3, YC3, AV4, YC4.
18	Text possible On/Off selection of Text (toggle function)
19	Direct access to Stereo Separation With cursor Up/Down the Stereo separation can be adjusted (w/o OSD, Menu display)
20	see TT10
21	Picture Rotation automatic function : (-4) -> (+4) -> 0
22	Operating Timer and Error Monitor display
23	Direct access to Sub Brightness Adjustment With cursor Up/Down the Sub BRT can be adjusted (w/o OSD, Menu display)
24	Direct access to Sub Color. With Cursor Up/Down the Sub Color can be adjusted.
25	Status menu display (SubController, CXA1840 Status, Main Controller.
26	Text Character selection (Char set 06 ->West Europe)
27	Text Character selection (Char set 38 ->East Europe)
28	Text Character selection (Char set 40 ->West Europe) US English
29	Text Character selection (Char set 55 ->West Europe) Turkish
30	see TT10
31	Text Character selection Char set Russian
32	Text Character selection Char set Greek
33	Programme catching test (Programme catching can be released by "Menu command")
34	Multi PIP adjustment. Direct access to 3.58 horizontal write position. With Cursor Up/Down the 3.58 H write Pos can be adjusted (w/o OSD, Menu display).
35	Multi PIP adjustment. Direct access to 4.43 horizontal write position. With Cursor Up/Down the 4.43 H write Pos can be adjusted (w/o OSD, Menu display).
36	Mtx Register 112 = intern display clock
37	Mtx Register 112 = extern display clock

38	Automatic selection of Screen Modes: (not for S (4:3) Models. 4:3 -> Zoom -> Zoom up -> Zoom Center -> Zoom down -> Zoom Center -> smart -> (if Pal+ signal) PALPLUS -> wide.
39	Reset Programme Table (NVM Bank 0ACH) The sorting of programmes in "Programme Sorting Menu" is reset.
40	see TT10
41	no function
42	no function
43	no function
44	no function
45	Set NVM to Protect mode (Bank 0AEH Adr. 0FFH write with 0)
46	IR Channel Pressetting Mode. The channel pressetting can be done by a Special IR transmitter Sequence: TT46 -> -- PR Number select dispaly appears Select Prog. No from where the channel shall be stored. --> Now TV is waiting for IR sequence <-- --> If no IR transmission starts TT46 is released after 20 secs <-- !Note: When TT46 is active, any transmission will be interpreted as PROG data !
47	Direct access to Headphone Source Selection (Production use)
48	Direct access to AGC Adjustment (PWM) output.
49	The EEPROM Testbyte is erased. After Power OFF -> ON the complete EEPROM data (exept channel tables) is overwritten. EEPROM Protection byte is set to 0 protection mode
50	see TT10
51	Strobo mode is activated.
52	no function.
53	Photo mode test (Photo mode can be released by "Menu command").
54	Direct access to Velocity Modulation VM (Production use)
55	MTX Slicer Control "Low Pass" (only Sys L)
56	MTX Slicer Control "No Compensation"
57	Megatext Service Menu ON
58	MTX Small Framing Code Window
59	MTX Wide Framing Code Window
60	see TT10

61	Set Dolby default values.
62	ACI disable.
63	ACI enable.
64	Reset all IIC Slave commands (Production use)
65	Reset stored error codes in NVM.
66	Reset for PALplus local controller and Sub Controller.
67	Direct access to Headphone Volume. With cursor Up/Down the Headphone Volume can be controlled (w/o OSD, menu display) (Production use)
68	ignore errors.
69	reset ignore errors (show errors)
70	see TT10
71	Picture Rotation Function On/Off toggle.
72	Dolby register setting menu.
73	Megatext RGB textlevel one step decreased (max 3 steps down starting from E0h) (Production use)
74	Megatext RGB textlevel one step decreased (max 1 steps down starting from E0h) (Production use)
75	reserved
76	CXD 2030 Default data setting.
77	CXD 2031 Default data setting
78	CXD 2032 Default data setting
79	CXD 2033 Default data setting
80	see TT10
81	CXD 2033D Default data setting
82	CXD 2035 Default data setting
83	CXA 1526 Default data setting
84	CXA 1839 Default data setting
85	CXA 1840 Default data setting
86	TDA 9145 Default data setting
87	TDA 9160 Default data setting
88	no function
89	no function
90	see TT10

4-4. ERROR MONITOR AND DETECTION

In the menu 'Error Monitor', information about the error status of the set is displayed.

- Actual operating time
- Last five errors which are stored in the NVM.
- Actual error.

Error Monitor

Operating Time
000355 h 35min

Saved Errors
1. 40h=D1 Board
2.. 60h=Q Board
3. 70h=T Board
4. 00h=no error occured
5. 00h=no error occured

Actual Error
-> 00h=no error occured

to reset the NVM press 'TT' 65

Additionally the Error Reader can be connected to the service connector to read out the actual errors.

The device check itself is active while the TV set is running out of stand-by mode. The devices are checked by sending an I^2C start sequence and if there is no acknowledgement back from the devices it is regarded as an error. Each device is checked three times and if at every attempt there is no reply from the relevant device an error is given. To read the error codes press 'TT' followed by 22 on the commander to view the Error Monitor menu.

To reset the error codes in the NVM press 'TT' followed by 65 on the remote commander.

TABLE OF ERROR CODES

Error Code	Device	Description	Board
000h	no device	no error has occured	-
001h	IIC 1 and IIC 2	IIC 1 and IIC 2 blockaded	-
002h	IIC 1	IIC1 is blockaded	-
003h	IIC 2	IIC 2 is blockaded	-
010h	A Board	A Board is defective	-
020h	A1 Board	A1 Board is defective	-
030h	BX-Board (B,B1,B2)	B, B1, or B2 Board is defective	-
040h	D1 Board	D1 Board defect	-
050h	J Board	J Board defect	-
060h	Q Board	Q Board defect	-
070h	T Board	T Board defect	-
011h	CXP85332	No response from the Subcontroller	A
012h	ST24C16	No response from the NVM	A
013h	SDA5273	No response from the Megatext IC	A
014h	TDA6812	No response from the Sound Processor	A
015h	SAA7283	No response from the Nicam Decoder	A
016h	UV916H	No response from the Main Tuner	A
017h	CXA1839Q	No response from the Video Controller	A
018h	CXA1840	No response from the CRT Driver	A
019h	RGB8443	No response from RGB/YUV	A
021h	TDA6622	Audio processor of the Center and Surround channel in the case of Dolby Prologic does not respond.	A1
022h	TDA7317	No response from the Equalizer.	A1
031h	CXD2030R	No response from the Digital Video Processor.	B/B1
032h	CXD2031R	No response from the Twin Picture IC.	B1
033h	CXD2032R	No response from the Digital Sampling Rate Converter.	B/B1
034h	CXD2033R	No response from the Picture in Picture IC.	B
035h	CXD2035R	No response from the Aspect Converter.	B/B1
036h	TDA9160	No response from the Chroma Decoder.	B/B1
037h	TDA9145	No response from the Chroma Decoder (on French models only.)	B2
041h	CXA1526	No response from the Convergence IC.	D1
051h	CXA1855	No response from the AV-Switch	J
061h	83C65202	No response from the Local Controller.	Q
071h	UV1316/TSA5526	No response from the Subtuner.	T
072h	CXA1875	No response from the Port Expander.	T

4-5. LED Error Blinking

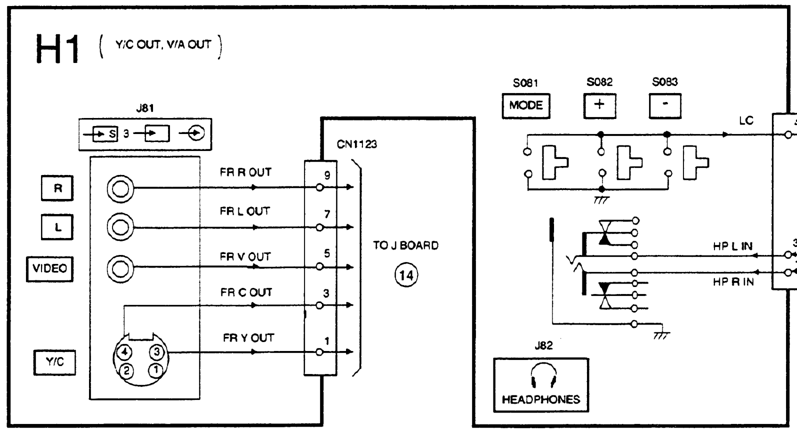
In addition to the Error Monitor facility there is an additional error indicator which indicates the most important errors also in the case of IIC error and Megatext error in opposition to the error monitor.
The error is recorded by counting the number of times that LED B blinks. This facility also works while in stand-by mode.

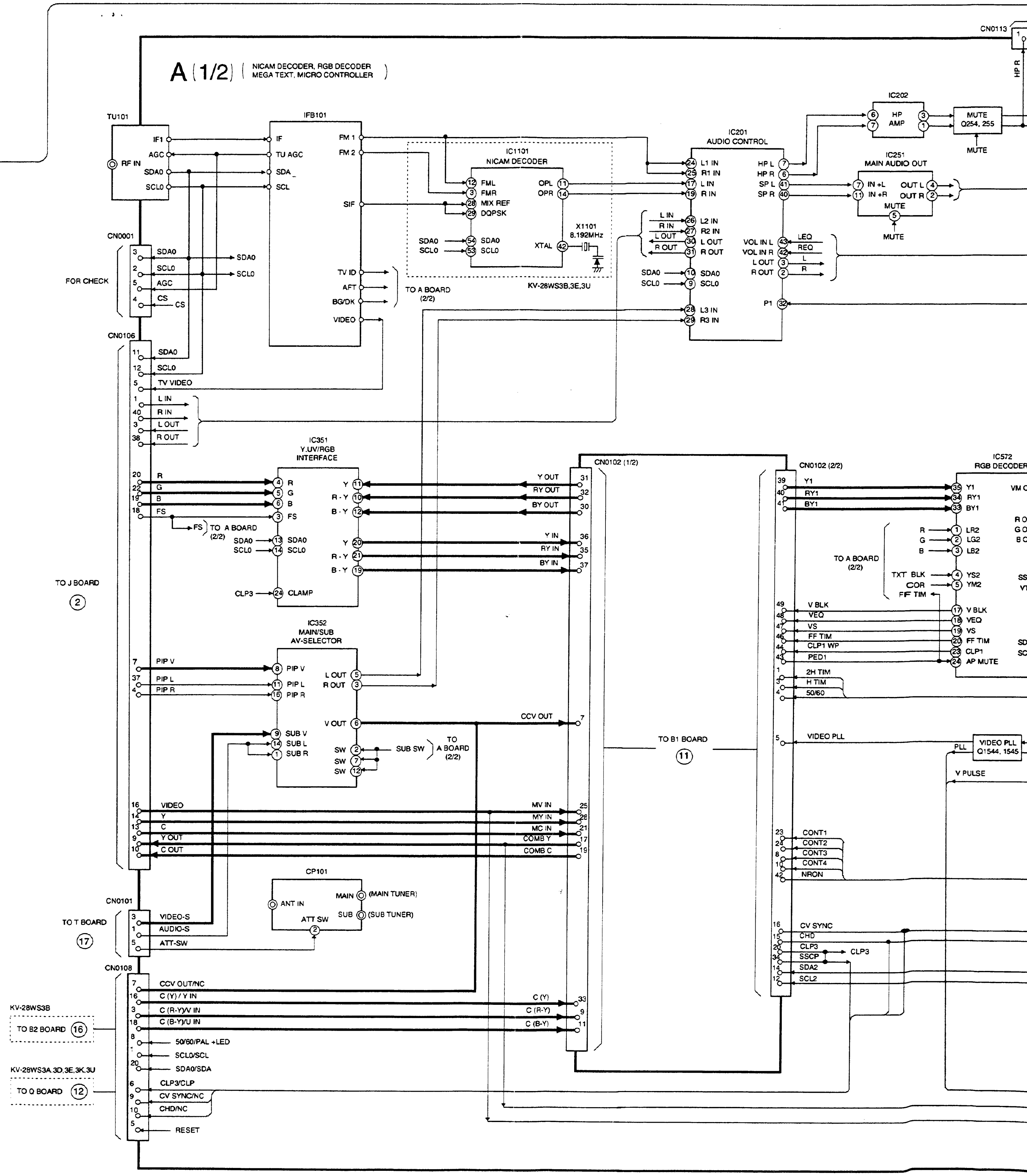
LED Error Code.

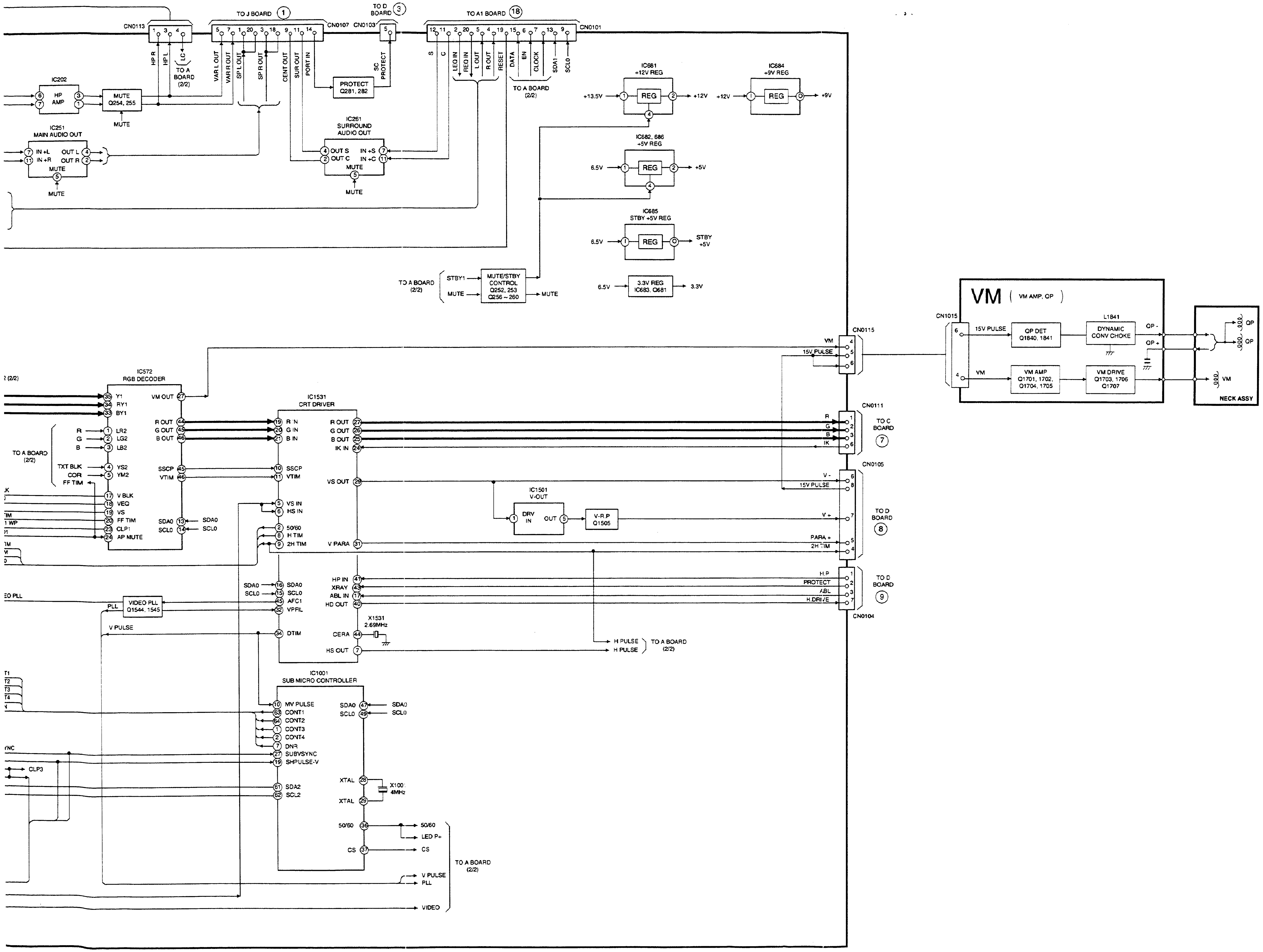
Error	number of LED B blinking	Description	Board
0	1	general IIC error	-
1	2	ST24C16 NVM error	A
2	3	CXP85332 subcontroller error	A
3	4	CXD2030R error of Digital Video Processor	B/B1
4	5	CXD2032R error of Digital Sampling Rate Converter	B/B1
5	6	CXD2035R error of Aspect Converter	B/B1
6	7	TDA1839 error of Video Controller	A
7	8	TDA1840 error of CRT Driver	A
8	9	CXA1855 error of AV switch	J
9	11	SDA5273 error of Megatext	A
10	12	TDA6812 error of Sound Processor	A
11	16	V-Protection (In this case the TV set is switched of immediately)	-

SECTION 5
DIAGRAMS

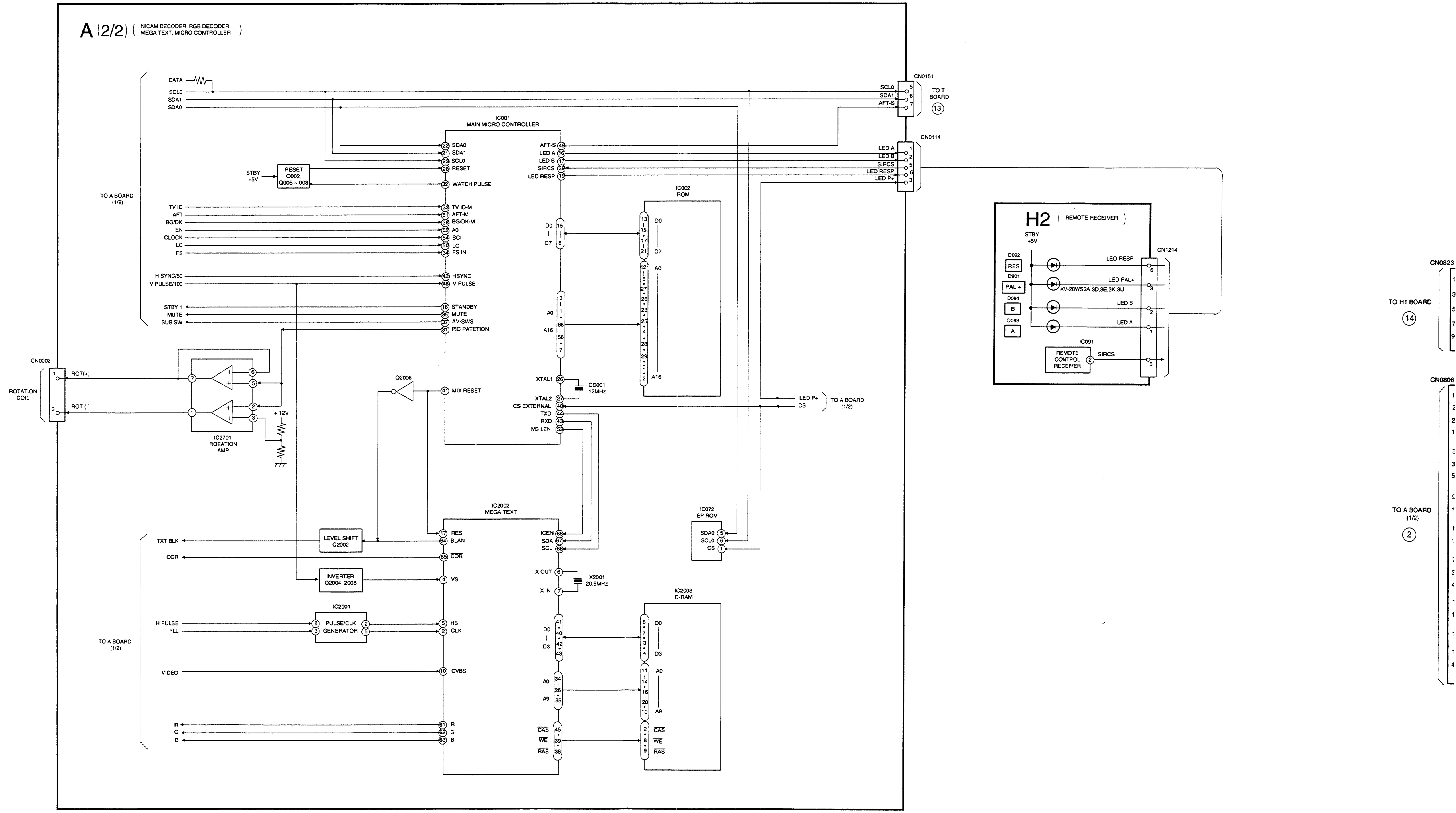
5-1. BLOCK DIAGRAM (1)


H1 (Y/C OUT, V/A OUT)
J81
R
L
VIDEO
Y/C
FR R OUT
FR L OUT
FR V OUT
FR C OUT
FR Y OUT
CN1123
TO J BOARD
⑭
S081
S082
S083
MODE
+
-
LC
CN1113
HP L IN
HP R IN
J82
HEADPHONES

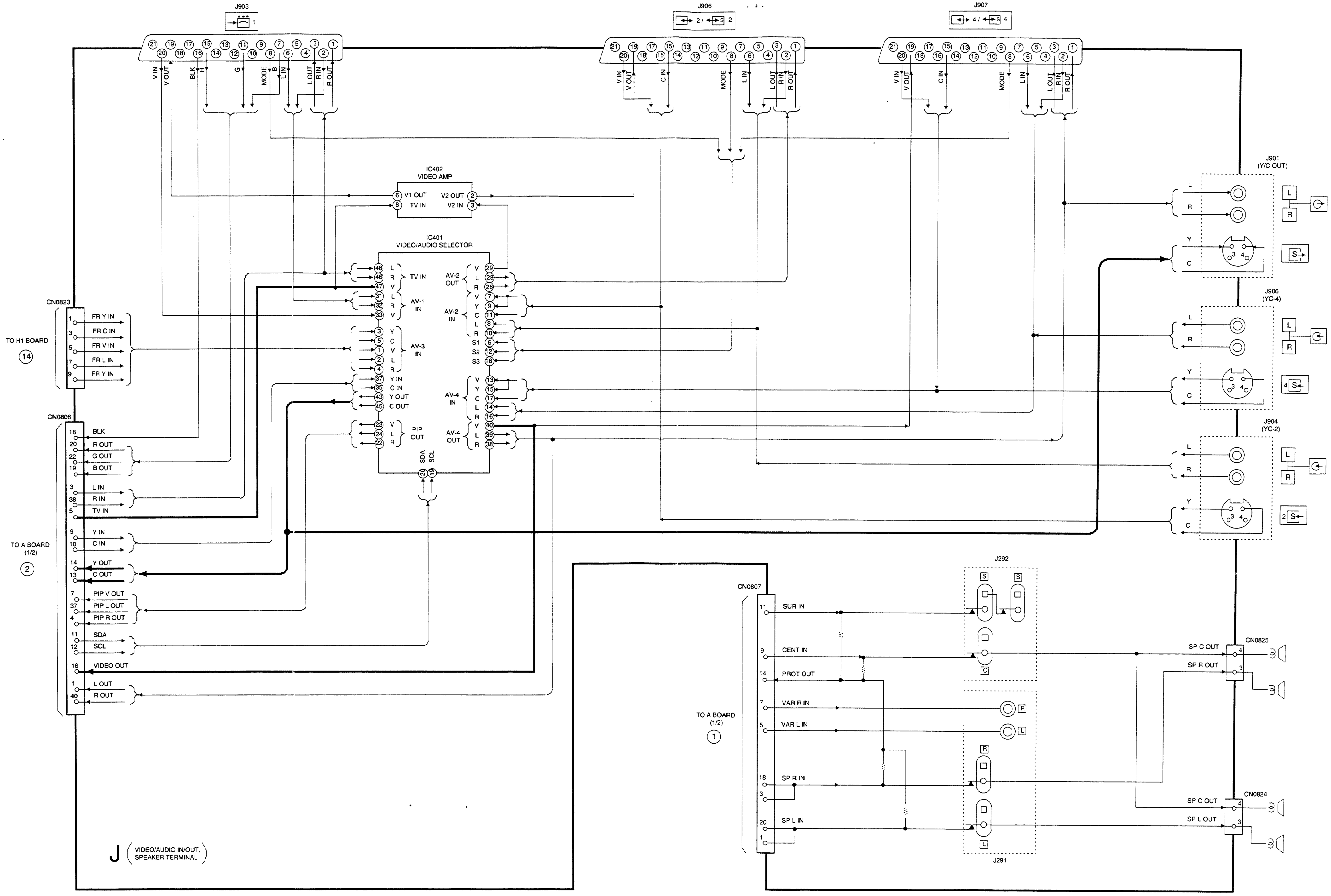

A (1/2) (NICAM DECODER, RGB DECODER MEGA TEXT, MICRO CONTROLLER)
TU101
RF IN
IF1
AGC
SDA0
SCL0
IFB101
IF
TU AGC
SDA
SCL
FM 1
FM 2
SIF
TV ID
AFT
BG/DK
VIDEO
TO A BOARD (2/2)
IC1101
NICAM DECODER
FML
FMR
MIX REF
DQPSK
OPL
OPR
X1101
8.192MHz
XTAL
KV-28WS3B,3E,3U
IC201
AUDIO CONTROL
L1 IN
R1 IN
L IN
R IN
L2 IN
R2 IN
L OUT
R OUT
L3 IN
R3 IN
HP L
HP R
SP L
SP R
VOL IN L
VOL IN R
P1
LEQ
REQ
IC202
HP AMP
MUTE
Q254, 255
IC251
MAIN AUDIO OUT
IN +L
IN +R
OUT L
OUT R
CN0113
HP R
CN0001
FOR CHECK
CS
CN0106
TV VIDEO
TO J BOARD
②
IC351
Y,UV/RGB INTERFACE
R
G
B
FS
CLAMP
CLP3
Y OUT
RY OUT
BY OUT
Y IN
RY IN
BY IN
IC352
MAIN/SUB AV-SELECTOR
PIP V
PIP L
PIP R
SUB V
SUB L
SUB R
V OUT
SW
SUB SW
CCV OUT
CN0102 (1/2)
CN0102 (2/2)
TO B1 BOARD
⑪
MV IN
MY IN
MC IN
COMB Y
COMB C
Y OUT
C OUT
CP101
ANT IN
ATT SW
MAIN (MAIN TUNER)
SUB (SUB TUNER)
CN0101
TO T BOARD
⑰
VIDEO-S
AUDIO-S
ATT-SW
CN0108
KV-28WS3B
TO B2 BOARD ⑯
KV-28WS3A,3D,3E,3K,3U
TO Q BOARD ⑫
CCV OUT/NC
C (Y) / Y IN
C (R-Y)/V IN
C (B-Y)/U IN
50/60/PAL +LED
SCL0/SCL
SDA0/SDA
CLP3/CLP
CV SYNC/NC
CHD/NC
RESET
C (Y)
C (R-Y)
C (B-Y)
IC572
RGB DECODER
Y1
RY1
BY1
LR2
LG2
LB2
YS2
YM2
TXT BLK
COR
FF TIM
V BLK
VEO
VS
CLP1
AP MUTE
CLP1 WP
PED1
2H TIM
H TIM
50/60
VIDEO PLL
PLL
Q1544, 1545
V PULSE
CONT1
CONT2
CONT3
CONT4
NRON
CV SYNC
CHD
CLP3
SSCP
SDA2
SCL2


CN0113
TO J BOARD ①
CN0107
TO D BOARD ③
CN0103
TO A1 BOARD ⑱
CN0101
HP R
HP L
LC
TO A BOARD (2/2)
VAR L OUT
VAR R OUT
SP L OUT
SP R OUT
CENT OUT
SUR OUT
PORT IN
SC PROTECT
S
C
LEQ IN
REQ IN
L OUT
R OUT
RESET
DATA
EN
CLOCK
SDA1
SCL0
TO A BOARD (2/2)
PROTECT Q281, 282
IC202
HP AMP
MUTE Q254, 255
MUTE
IC251 MAIN AUDIO OUT
IN +L
IN +R
OUT L
OUT R
MUTE
MUTE
IC261 SURROUND AUDIO OUT
OUT S
OUT C
IN +S
IN +C
MUTE
MUTE
IC681 +12V REG
+13.5V
REG
+12V
IC684 +9V REG
+12V
REG
+9V
IC682, 686 +5V REG
6.5V
REG
+5V
IC685 STBY +5V REG
6.5V
REG
STBY +5V
6.5V
3.3V REG IC683, Q681
3.3V
TO A BOARD (2/2)
STBY1
MUTE
MUTE/STBY CONTROL Q252, 253 Q256 ~ 260
MUTE
VM (VM AMP, QP)
CN1015
15V PULSE
QP DET Q1840, 1841
L1841
DYNAMIC CONV CHOKE
QP -
QP +
VM
VM AMP Q1701, 1702, Q1704, 1705
VM DRIVE Q1703, 1706 Q1707
QP
QP
VM
NECK ASSY
CN0115
VM
15V PULSE
IC572 RGB DECODER
Y1
RY1
BY1
VM OUT
R
G
B
LR2
LG2
LB2
R OUT
G OUT
B OUT
TO A BOARD (2/2)
TXT BLK
COR
FF TIM
YS2
YM2
SSCP
VTIM
V BLK
VEQ
VS
FF TIM
CLP1
AP MUTE
SDA0
SCL0
SDA0
SCL0
IC1531 CRT DRIVER
R IN
G IN
B IN
R OUT
G OUT
B OUT
IK IN
SSCP
VTIM
VS OUT
VS IN
HS IN
50/60
H TIM
2H TIM
V PARA
CN0111
R
G
B
IK
TO C BOARD ⑦
CN0105
V -
15V PULSE
V +
PARA +
2H TIM
TO D BOARD ⑧
IC1501 V-OUT
DRV IN
OUT
V-R.P Q1505
SDA0
SCL0
SDA0
SCL0
AFC1
VPFIL
HP IN
XRAY
ABL IN
HD OUT
H.P
PROTECT
ABL
H.DRIVE
TO D BOARD ⑨
CN0104
VIDEO PLL Q1544, 1545
PLL
V PULSE
DTIM
CERA
X1531 2.69MHz
HS OUT
H PULSE
H PULSE
TO A BOARD (2/2)
IC1001 SUB MICRO CONTROLLER
MV PULSE
CONT1
CONT2
CONT3
CONT4
DNR
SUBVSYNC
SHPULSE-V
SDA2
SCL2
SDA0
SCL0
SDA0
SCL0
XTAL
XTAL
X1001 4MHz
50/60
CS
50/60
LED P+
CS
V PULSE
PLL
VIDEO
TO A BOARD (2/2)
CLP3

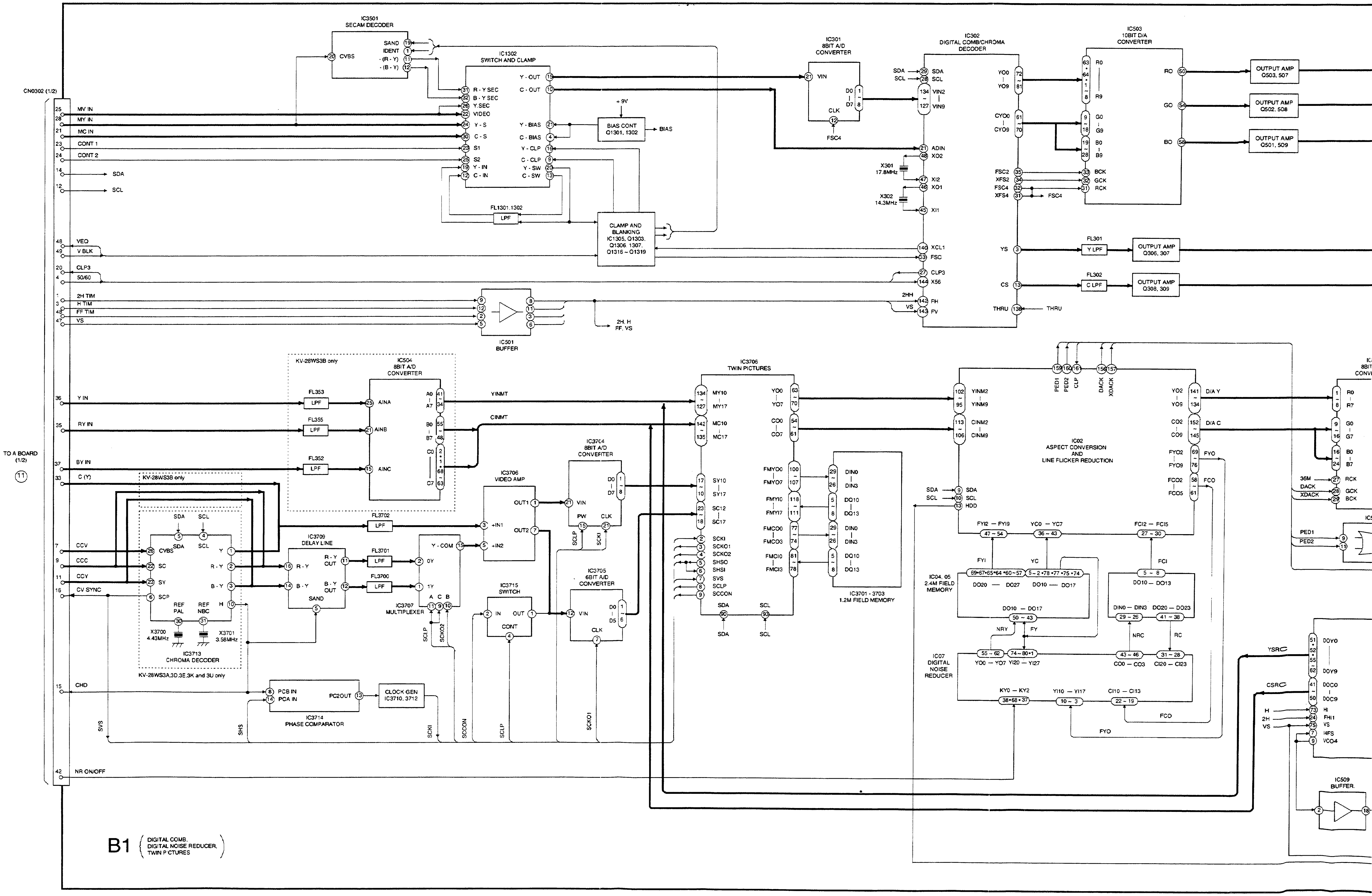
BLOCK DIAGRAM (2)

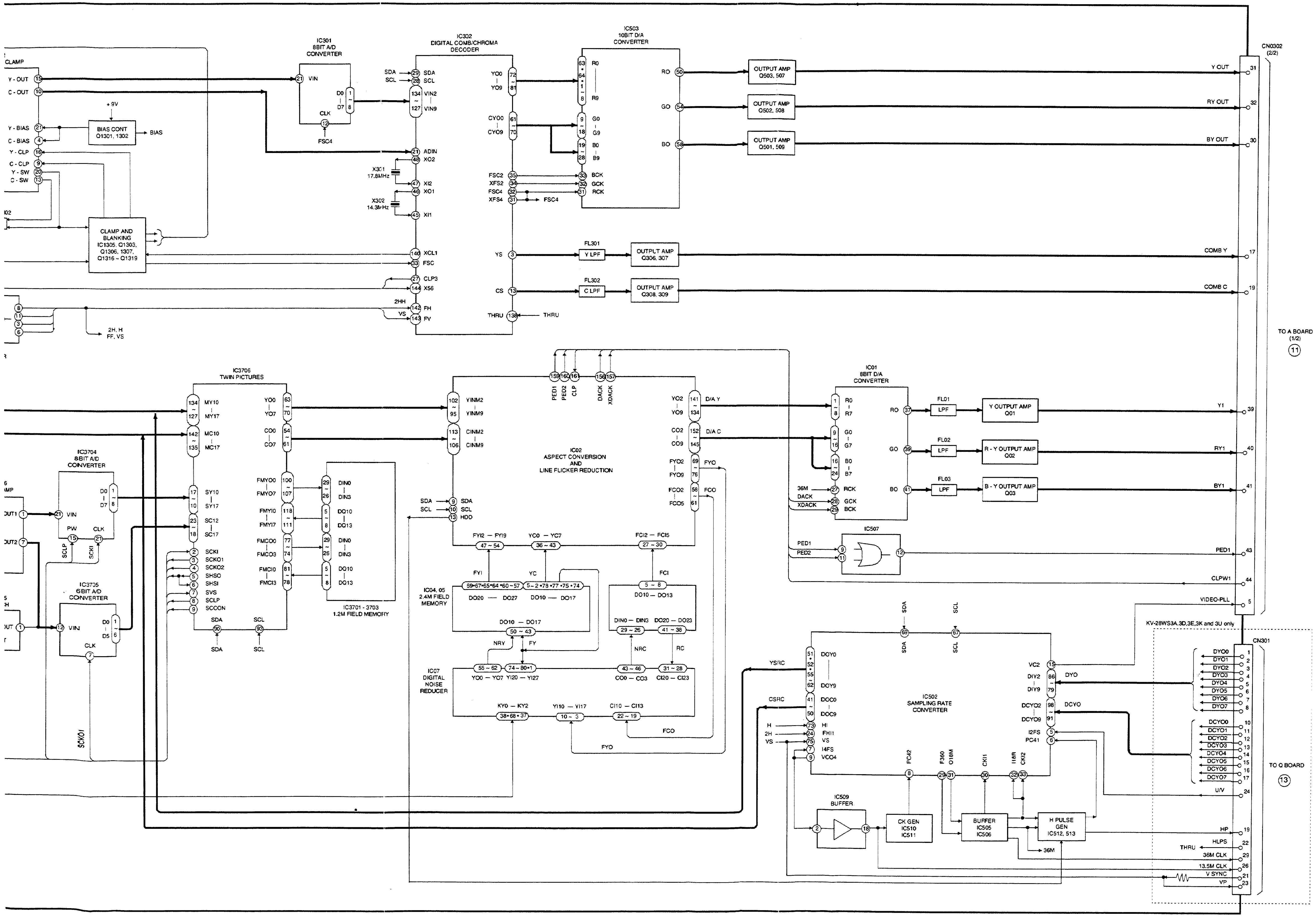

A (2/2) (NICAM DECODER, RGB DECODER MEGA TEXT, MICRO CONTROLLER)
DATA
SCL0
SDA1
SDA0
TO A BOARD (1/2)
TV ID
AFT
BG/DK
EN
CLOCK
LC
FS
H SYNC/50
V PULSE/100
STBY 1
MUTE
SUB SW
STBY +5V
RESET Q002, Q005 ~ 008
IC001 MAIN MICRO CONTROLLER
22 SDA0
21 SDA1
23 SCL0
28 RESET
32 WATCH PULSE
33 TV ID-M
51 AFT-M
38 BG/DK-M
52 A0
54 SCI
50 LC
34 FS IN
42 HSYNC
48 V PULSE
18 STANDBY
35 MUTE
37 AV-SWS
31 PIC PATETION
41 MIX RESET
AFT-S 49
LED A 16
LED B 17
SIRCS 39
LED RESP 19
D0 15 | D7 8
A0 | A16 3 1 68 56 7
XTAL1 26
CD001 12MHz
XTAL2 27
CS EXTERNAL 40
TXD 44
RXD 43
M3 LEN 53
IC002 ROM
13 15 17 21 D0 D7
12 5 27 26 23 25 4 28 29 3 2 A0 A16
CN0151
SCL0 5
SDA1 6
AFT-S 7
TO T BOARD 13
CN0114
LED A 1
LED B 2
SIRCS 5
LED RESP 6
LED P+ 3
LED P+
CS
TO A BOARD (1/2)
IC072 EP ROM
SDA0 5
SCL0 6
CS 1
CN0002
ROTATION COIL
1 ROT(+)
3 ROT(-)
IC2701 ROTATION AMP
7 6 5 1 2 3
+12V
Q2006
IC2002 MEGA TEXT
17 RES
64 BLAN
65 COR
4 VS
5 HS
2 CLK
10 CVBS
61 R
62 G
63 B
ICEN 68
SDA 67
SCL 66
X OUT 6
X IN 7
X2001 20.5MHz
D0 | D3 41 40 42 43
A0 A9 34 26 35
CAS 45
WE 39
RAS 38
TXT BLK
COR
LEVEL SHIFT Q2002
INVERTER Q2004, 2008
IC2001
PULSE/CLK GENERATOR 8 3 2 5
H PULSE
PLL
VIDEO
R
G
B
TO A BOARD (1/2)
IC2003 D-RAM
6 7 3 4 D0 D3
11 14 16 20 10 A0 A9
2 CAS
8 WE
9 RAS
H2 (REMOTE RECEIVER)
STBY +5V
D092 RES
D901 PAL +
D094 B
D093 A
LED RESP 6
LED PAL+ 3
KV-28WS3A,3D,3E,3K,3U
LED B 2
LED A 1
IC091 REMOTE CONTROL RECEIVER 2
SIRCS 5
CN1214
CN0823
TO H1 BOARD 14
CN0806
TO A BOARD (1/2) 2

BLOCK DIAGRAM (3)

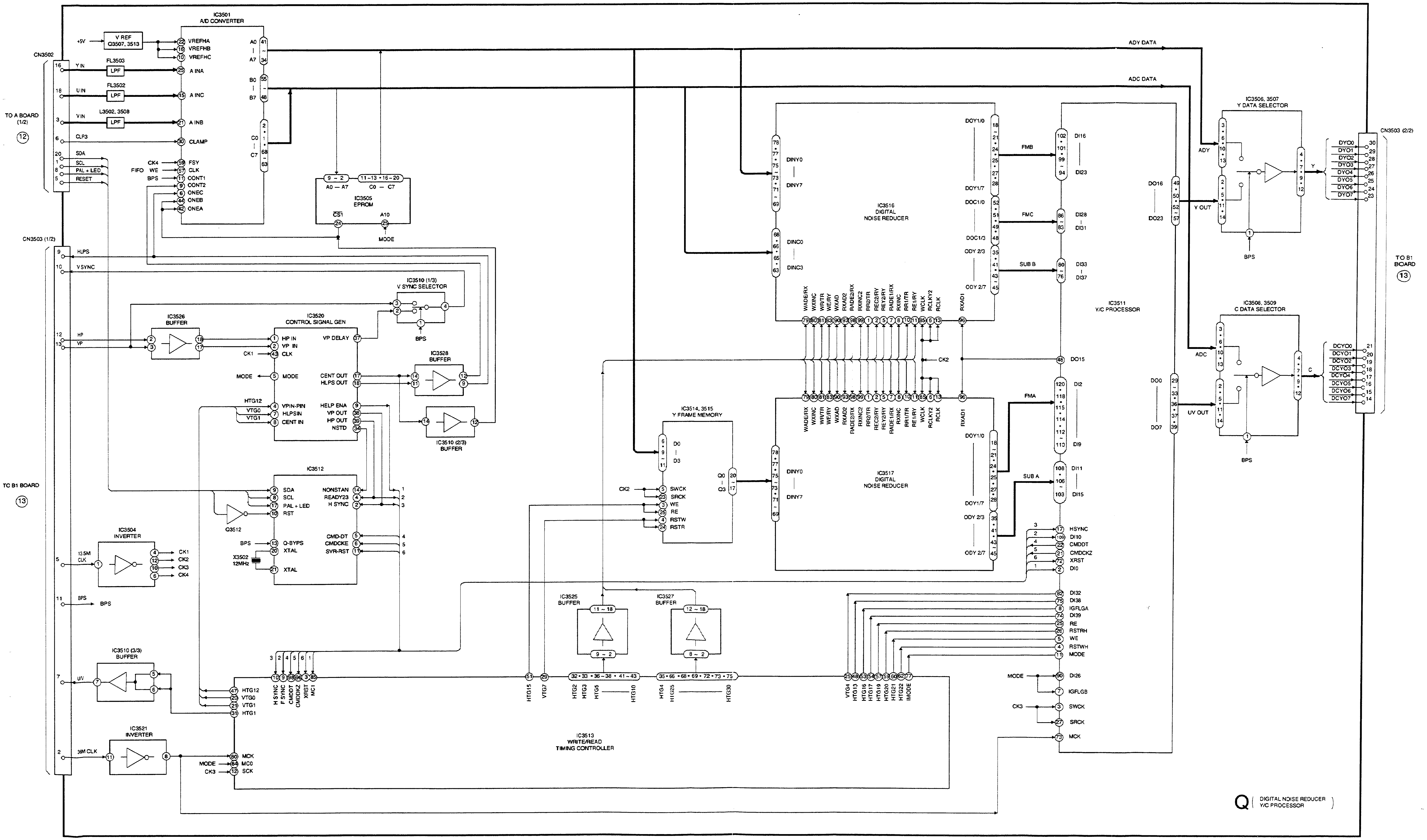

J903
J906
J907
V IN
V OUT
BLK
R
G
MODE
B
L IN
L OUT
R IN
R OUT
C IN
IC402
VIDEO AMP
V1 OUT
TV IN
V2 OUT
V2 IN
IC401
VIDEO/AUDIO SELECTOR
TV IN
AV-1 IN
AV-3 IN
Y IN
C IN
Y OUT
C OUT
PIP OUT
AV-2 OUT
AV-2 IN
S1
S2
S3
AV-4 IN
AV-4 OUT
SDA
SCL
CN0823
FR Y IN
FR C IN
FR V IN
FR L IN
FR Y IN
TO H1 BOARD
⑭
CN0806
BLK
R OUT
G OUT
B OUT
L IN
R IN
TV IN
Y IN
C IN
Y OUT
C OUT
PIP V OUT
PIP L OUT
PIP R OUT
SDA
SCL
VIDEO OUT
L OUT
R OUT
TO A BOARD
(1/2)
②
J901
(Y/C OUT)
J906
(YC-4)
J904
(YC-2)
L
R
Y
C
J292
J291
CN0807
SUR IN
CENT IN
PROT OUT
VAR R IN
VAR L IN
SP R IN
SP L IN
TO A BOARD
(1/2)
①
CN0825
SP C OUT
SP R OUT
CN0824
SP C OUT
SP L OUT
J
VIDEO/AUDIO IN/OUT,
SPEAKER TERMINAL

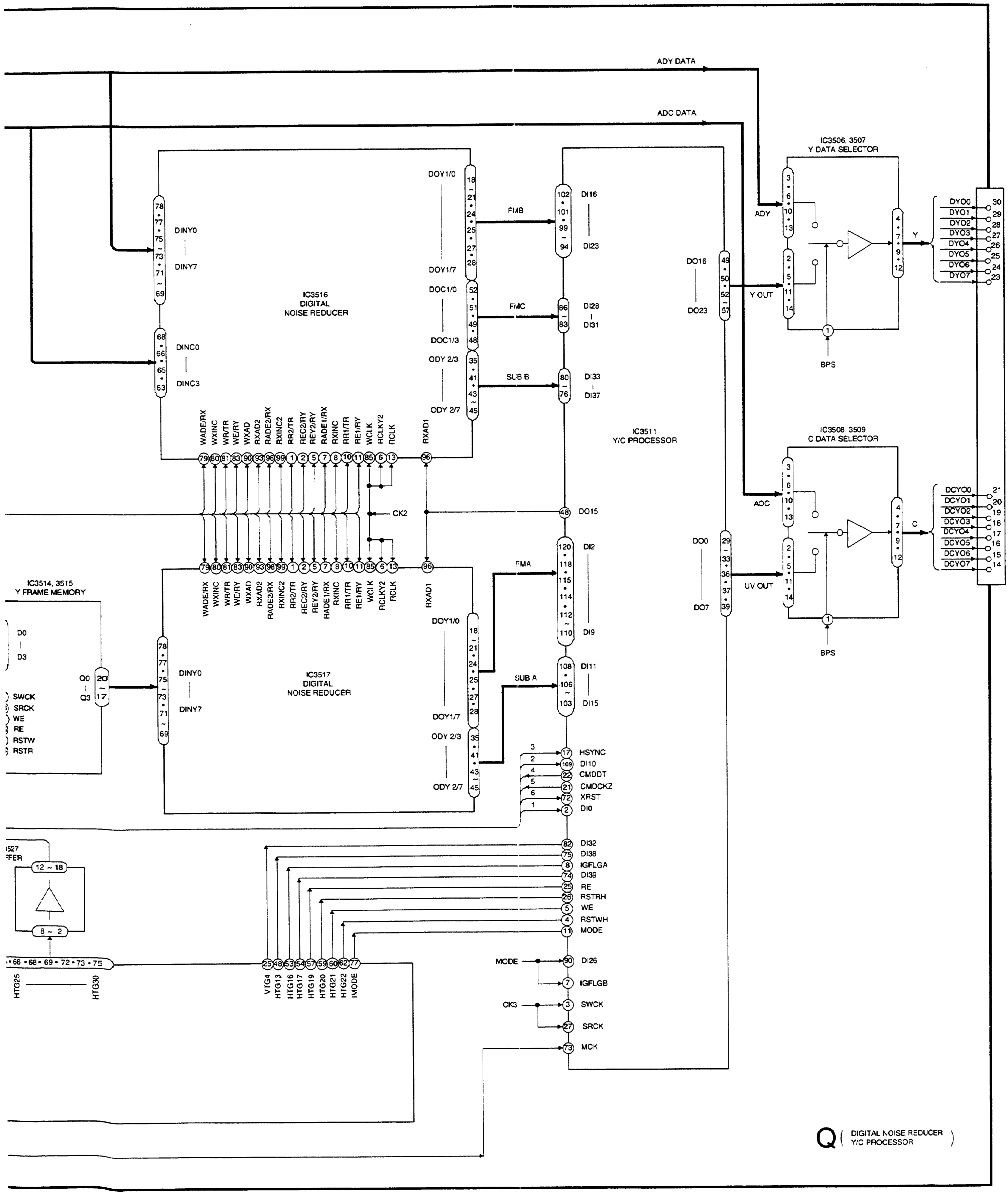
BLOCK DIAGRAM (4)


IC3501 SECAM DECODER
SAND
IDENT
-(R-Y)
-(B-Y)
CVBS
IC1302 SWITCH AND CLAMP
R-Y SEC
B-Y SEC
Y.SEC
VIDEO
Y-S
C-S
S1
S2
Y-IN
C-IN
Y-OUT
C-OUT
Y-BIAS
C-BIAS
Y-CLP
C-CLP
Y-SW
C-SW
+9V
BIAS CONT Q1301, 1302
BIAS
FL1301, 1302 LPF
CLAMP AND BLANKING IC1305, Q1303, Q1306, 1307, Q1316 – Q1319
CN0302 (1/2)
MV IN
MY IN
MC IN
CONT 1
CONT 2
SDA
SCL
VEO
V BLK
CLP3
50/60
2H TIM
H TIM
FF TIM
VS
IC501 BUFFER
2H, H FF, VS
IC301 8BIT A/D CONVERTER
VIN
D0 – D7
CLK
FSC4
IC302 DIGITAL COMB/CHROMA DECODER
SDA
SCL
VIN2 – VIN9
ADIN
XO2
X301 17.8MHz
XI2
XO1
X302 14.3MHz
XI1
XCL1
FSC
CLP3
X56
2HH
FH
FV
YO0 – YO9
CYO0 – CYO9
FSC2
XFS2
FSC4
XFS4
YS
CS
THRU
IC503 10BIT D/A CONVERTER
R0 – R9
G0 – G9
B0 – B9
BCK
GCK
RCK
RO
GO
BO
OUTPUT AMP Q503, 507
OUTPUT AMP Q502, 508
OUTPUT AMP Q501, 509
FL301 Y LPF
OUTPUT AMP Q306, 307
FL302 C LPF
OUTPUT AMP Q308, 309
TO A BOARD (1/2) ⑪
Y IN
RY IN
BY IN
C (Y)
KV-28WS3B only
IC504 8BIT A/D CONVERTER
FL353 LPF
FL355 LPF
FL352 LPF
AINA
AINB
AINC
A0 – A7
B0 – B7
C0 – C7
YINMT
CINMT
CCV
CCC
CCY
CV SYNC
IC3713 CHROMA DECODER
CVBS
SC
SY
SCP
REF PAL
REF NBC
X3700 4.43MHz
X3701 3.58MHz
KV-28WS3A,3D,3E,3K and 3U only
IC3709 DELAY LINE
R-Y OUT
B-Y OUT
SAND
FL3702 LPF
FL3701 LPF
FL3700 LPF
IC3707 MULTIPLEXER
Y-COM
0Y
1Y
A C B
IC3706 VIDEO AMP
+IN1
+IN2
OUT1
OUT2
IC3704 8BIT A/D CONVERTER
VIN
PW
CLK
IC3715 SWITCH
IN
OUT
CONT
IC3705 6BIT A/D CONVERTER
D0 – D5
IC3706 TWIN PICTURES
MY10 – MY17
MC10 – MC17
SY10 – SY17
SC12 – SC17
SCKI
SCKO1
SCKO2
SHSO
SHSI
SVS
SCLP
SCCON
YO0 – YO7
CO0 – CO7
FMYO0 – FMYO7
FMYI0 – FMYI7
FMCO0 – FMCO3
FMCI0 – FMCI3
DIN0 – DIN3
DO10 – DO13
IC3701 - 3703 1.2M FIELD MEMORY
CHD
IC3714 PHASE COMPARATOR
PCB IN
PCA IN
PC2OUT
CLOCK GEN IC3710, 3712
SVS
SHS
SCKI
SCCON
SCLP
SCKO1
NR ON/OFF
IC02 ASPECT CONVERSION AND LINE FLICKER REDUCTION
YINM2 – YINM9
CINM2 – CINM9
SDA
SCL
HDD
PED1
PED2
CLP
DACK
XDACK
YO2 – YO9
CO2 – CO9
FYO2 – FYO9
FCO2 – FCO5
D/A Y
D/A C
FYO
FCO
FYI2 – FYI9
YC0 – YC7
FCI2 – FCI5
FYI
YC
FCI
IC04, 05 2.4M FIELD MEMORY
DO20 – DO27
DO10 – DO17
DIN0 – DIN3
DO20 – DO23
NRY
FY
NRC
RC
IC07 DIGITAL NOISE REDUCER
YO0 – YO7
YI20 – YI27
CO0 – CO3
CI20 – CI23
KY0 – KY2
YI10 – YI17
CI10 – CI13
FCO
FYO
8BIT CONV
R0 – R7
G0 – G7
B0 – B7
36M
DACK
XDACK
RCK
GCK
BCK
PED1
PED2
YSRC
CSRC
DOY0 – DOY9
DOC0 – DOC9
H
2H
VS
HI
FHI1
VS
I4FS
VCO4
IC509 BUFFER
B1 (DIGITAL COMB, DIGITAL NOISE REDUCER, TWIN PICTURES)

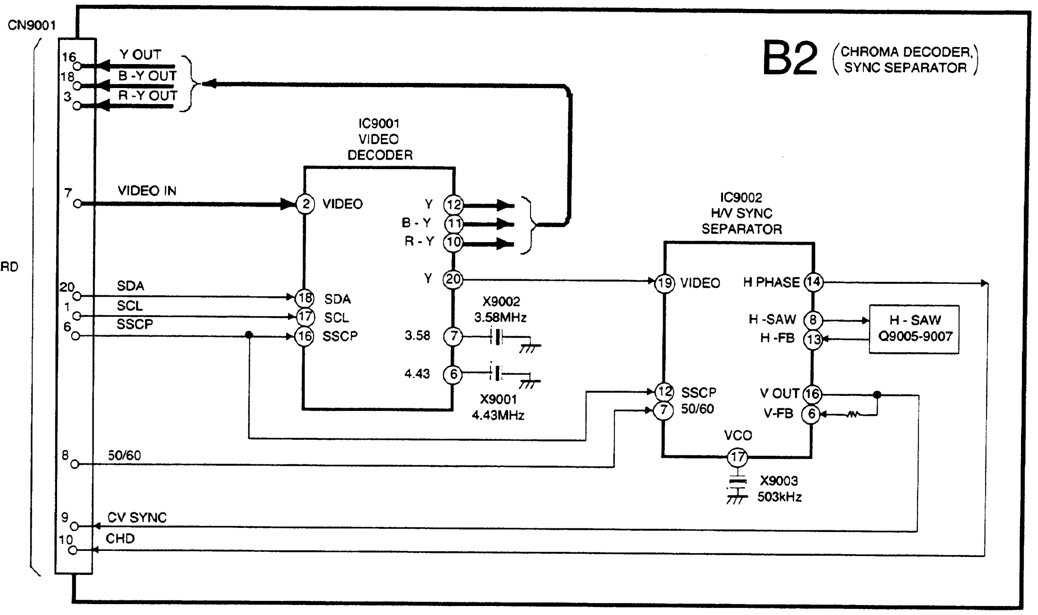

CLAMP
Y-OUT
C-OUT
+9V
Y-BIAS
C-BIAS
Y-CLP
C-CLP
Y-SW
C-SW
BIAS CONT
Q1301, 1302
BIAS
CLAMP AND BLANKING
IC1305, Q1303, Q1306, 1307, Q1316 ~ Q1319
2H, H
FF, VS
IC301
8BIT A/D CONVERTER
VIN
D0 ~ D7
CLK
FSC4
X301
17.8MHz
X302
14.3MHz
IC332
DIGITAL COMB/CHROMA DECODER
SDA
SCL
VIN2 ~ VIN9
ADIN
XO2
XI2
XO1
XI1
XCL1
FSC
CLP3
X56
2HH
FH
VS
FV
YO0 ~ YO9
CYO0 ~ CYO9
FSC2
XFS2
FSC4
XFS4
YS
CS
THRU
IC503
10BIT D/A CONVERTER
R0 ~ R9
G0 ~ G9
B0 ~ B9
BCK
GCK
RCK
RO
GO
BO
OUTPUT AMP
Q503, 507
OUTPUT AMP
Q502, 508
OUTPUT AMP
Q501, 509
FL301
Y LPF
FL302
C LPF
OUTPLT AMP
Q306, 307
OUTPUT AMP
Q308, 309
Y OUT
RY OUT
BY OUT
COMB Y
COMB C
CN0302
(2/2)
TO A BOARD
(1/2)
⑪
IC3706
TWIN PICTURES
MY10 ~ MY17
MC10 ~ MC17
SY10 ~ SY17
SC12 ~ SC17
SCKI
SCKO1
SCKO2
SHSO
SHSI
SVS
SCLP
SCCON
YO0 ~ YO7
CO0 ~ CO7
FMYO0 ~ FMYO7
FMYI0 ~ FMYI7
FMCO0 ~ FMCO3
FMCI0 ~ FMCI3
DIN0 ~ DIN3
DO10 ~ DO13
IC3701 - 3703
1.2M FIELD MEMORY
IC3704
8BIT A/D CONVERTER
PW
SCLP
SCKI
IC3705
6BIT A/D CONVERTER
D0 ~ D5
SCKO1
IC02
ASPECT CONVERSION AND LINE FLICKER REDUCTION
PED1
PED2
CLP
DACK
XDACK
YINM2 ~ YINM9
CINM2 ~ CINM9
HDD
YO2 ~ YO9
CO2 ~ CO9
FYO2 ~ FYO9
FCO2 ~ FCO5
D/A Y
D/A C
FYO
FCO
FYI2 — FYI9
YC0 — YC7
FCI2 — FCI5
FYI
YC
FCI
IC04, 05
2.4M FIELD MEMORY
DO20 — DO27
DO10 — DO17
DIN0 — DIN3
DO20 — DO23
NRY
FY
NRC
RC
IC07
DIGITAL NOISE REDUCER
YO0 — YO7
YI20 — YI27
CO0 — CO3
CI20 — CI23
KY0 — KY2
YI10 — YI17
CI10 — CI13
FCO
FYO
IC01
8BIT D/A CONVERTER
R0 ~ R7
G0 ~ G7
B0 ~ B7
36M
DACK
XDACK
RCK
GCK
BCK
FL01
LPF
FL02
LPF
FL03
LPF
Y OUTPUT AMP
Q01
R - Y OUTPUT AMP
Q02
B - Y OUTPUT AMP
Q03
Y1
RY1
BY1
IC507
PED1
PED2
CLPW1
VIDEO-PLL
KV-28WS3A,3D,3E,3K and 3U only
CN301
YSRC
CSRC
H
2H
VS
IC502
SAMPLING RATE CONVERTER
DOY0 ~ DOY9
DOC0 ~ DOC9
HI
FHI1
VS
I4FS
VCO4
VC2
DIY2 ~ DIY9
DCYO2 ~ DCYO9
I2FS
PC41
PC42
F360
O18M
CKI1
I18R
CKI2
DYO
DCYO
DYO0 ~ DYO7
DCYO0 ~ DCYO7
U/V
TO Q BOARD
⑬
IC509
BUFFER
CK GEN
IC510
IC511
BUFFER
IC505
IC506
H PULSE GEN
IC512, 513
36M
HP
HLPS
THRU
36M CLK
13.5M CLK
V SYNC
VP

BLOCK DIAGRAM (5) KV-28WS3A, 3D, 3E, 3K, 3U

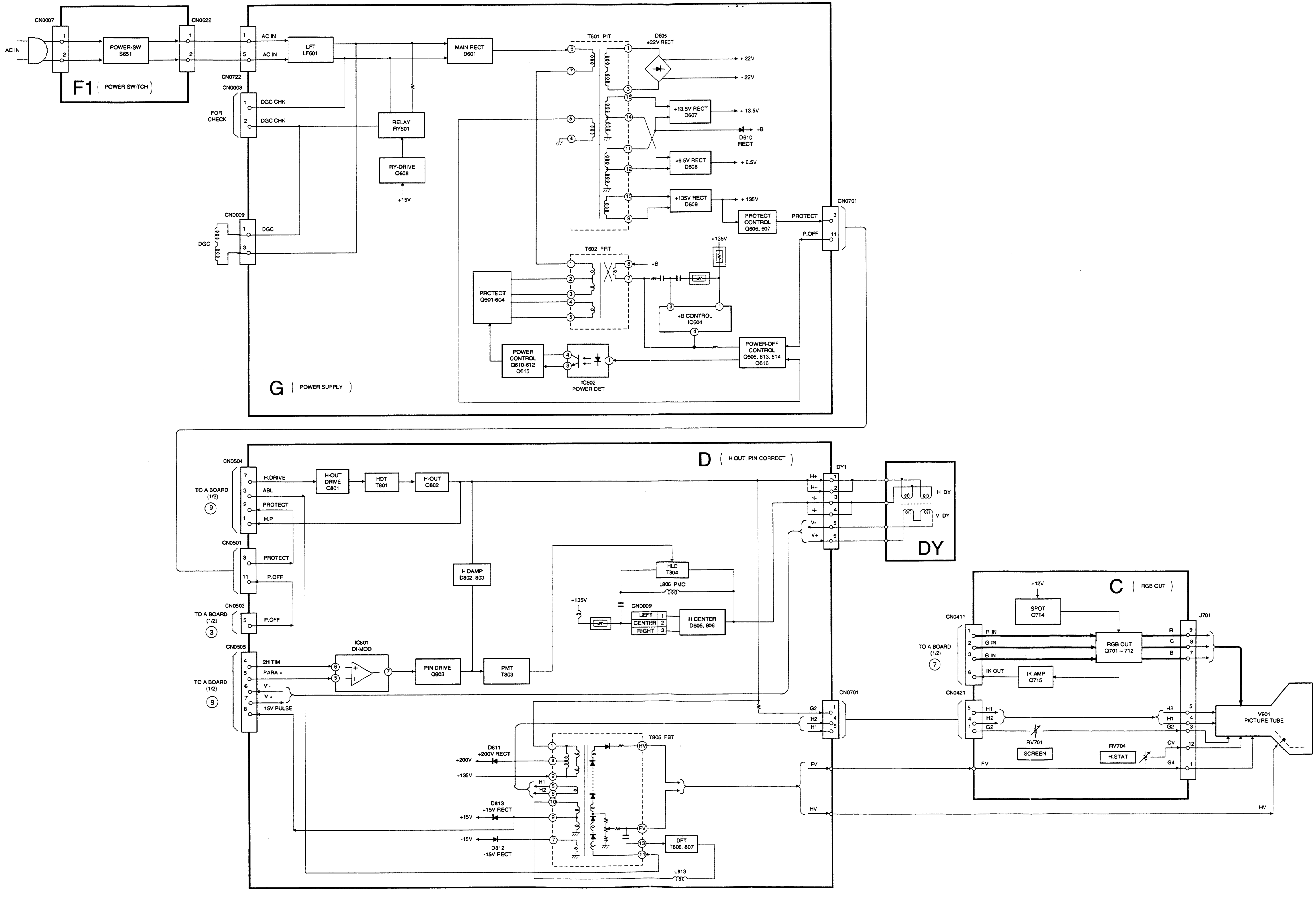

IC3501
A/D CONVERTER
V REF
Q3507, 3513
+5V
VREFHA
VREFHB
VREFHC
CN3502
FL3503
LPF
Y IN
A INA
FL3502
U IN
A INC
L3502, 3508
V IN
A INB
TO A BOARD
(1/2)
⑫
CLP3
CLAMP
SDA
SCL
PAL + LED
RESET
CK4
FIFO WE
BPS
FSY
CLK
CONT1
CONT2
ONEC
ONEB
ONEA
A0
A7
B0
B7
C0
C7
IC3505
EPROM
A0 — A7
C0 — C7
CS1
A10
MODE
ADY DATA
ADC DATA
CN3503 (1/2)
HLPS
V SYNC
IC3510 (1/3)
V SYNC SELECTOR
BPS
IC3526
BUFFER
IC3520
CONTROL SIGNAL GEN
HP
VP
HP IN
VP IN
CLK
CK1
VP DELAY
MODE
CENT OUT
HLPS OUT
IC3528
BUFFER
HTG12
VTG0
VTG1
VPIN-PIN
HLPSIN
CENT IN
HELP ENA
VP OUT
HP OUT
NSTD
IC3510 (2/3)
BUFFER
TO B1 BOARD
⑬
IC3512
SDA
SCL
PAL + LED
RST
Q3512
NONSTAN
READY23
H SYNC
BPS
Q-BYPS
XTAL
X3502
12MHz
CMD-DT
CMDCKE
SVR-RST
IC3504
INVERTER
13.5M
CLK
CK1
CK2
CK3
CK4
BPS
IC3510 (3/3)
BUFFER
U/V
IC3521
INVERTER
36M CLK
HTG12
VTG0
VTG1
HTG1
MCK
MC0
SCK
MODE
CK3
H SYNC
F SYNC
CMDDT
CMDDK2
XRST
MC1
HTG15
VTG7
HTG2
HTG3
HTG5
HTG10
HTG4
HTG25
HTG30
VTG4
HTG13
HTG16
HTG17
HTG19
HTG20
HTG21
HTG22
IMODE
IC3525
BUFFER
IC3527
BUFFER
IC3513
WRITE/READ
TIMING CONTROLLER
IC3514, 3515
Y FRAME MEMORY
D0
D3
Q0
Q3
CK2
SWCK
SRCK
WE
RE
RSTW
RSTR
IC3516
DIGITAL
NOISE REDUCER
DINY0
DINY7
DINC0
DINC3
DOY1/0
DOY1/7
DOC1/0
DOC1/3
ODY 2/3
ODY 2/7
FMB
FMC
SUB B
WADE/RX
WXINC
WE/TR
WE/RY
WXAD
RXAD2
RADE2/RX
RXINC2
RR2/TR
RE2/RY
RE2/RY
RADE1/RX
RXINC
RR1/TR
RE1/RY
WCLK
RCLKY2
RCLK
RXAD1
CK2
IC3517
DIGITAL
NOISE REDUCER
FMA
SUB A
IC3511
Y/C PROCESSOR
DI16
DI23
DI28
DI31
DI33
DI37
DO15
DI2
DI9
DI11
DI15
HSYNC
DI10
CMDDT
CMDCKZ
XRST
DI0
DI32
DI38
IGFLGA
DI39
RE
RSTRH
WE
RSTWH
MODE
DI26
IGFLGB
SWCK
SRCK
MCK
DO16
DO23
Y OUT
DO0
DO7
U/V OUT
IC3506, 3507
Y DATA SELECTOR
ADY
Y
BPS
IC3508, 3509
C DATA SELECTOR
ADC
C
BPS
CN3503 (2/2)
DYO0
DYO1
DYO2
DYO3
DYO4
DYO5
DYO6
DYO7
DCYO0
DCYO1
DCYO2
DCYO3
DCYO4
DCYO5
DCYO6
DCYO7
TO B1
BOARD
⑬
Q (DIGITAL NOISE REDUCER
Y/C PROCESSOR)


ADY DATA
ADC DATA
IC3516
DIGITAL
NOISE REDUCER
DINY0
DINY7
DINC0
DINC3
DOY1/0
DOY1/7
DOC1/0
DOC1/3
ODY 2/3
ODY 2/7
FMB
FMC
SUB B
DI16
DI23
DI28
DI31
DI33
DI37
IC3511
Y/C PROCESSOR
DO15
CK2
IC3506, 3507
Y DATA SELECTOR
ADY
Y OUT
BPS
DO16
DO23
DYO0
DYO1
DYO2
DYO3
DYO4
DYO5
DYO6
DYO7
CN3503 (2/2)
TO B1
BOARD
⑬
IC3508, 3509
C DATA SELECTOR
ADC
UV OUT
DO0
DO7
DCYO0
DCYO1
DCYO2
DCYO3
DCYO4
DCYO5
DCYO6
DCYO7
WADE/RX
WXINC
WE/TR
WE/RY
WXAD
RXAD2
RADE2/RX
RXINC2
RR2/TR
REC2/RY
REY2/RY
RADE1/RX
RXINC
RR1/TR
RE1/RY
WCLK
RCLKY2
RCLK
RXAD1
IC3517
DIGITAL
NOISE REDUCER
FMA
SUB A
DI2
DI9
DI11
DI15
IC3514, 3515
Y FRAME MEMORY
D0
D3
Q0
Q3
SWCK
SRCK
WE
RE
RSTW
RSTR
HSYNC
DI10
CMDDT
CMDCKZ
XRST
DI0
DI32
DI38
IGFLGA
DI39
RE
RSTRH
WE
RSTWH
MODE
MODE
DI26
IGFLGB
CK3
SWCK
SRCK
MCK
HTG25
HTG30
VTG4
HTG13
HTG16
HTG17
HTG19
HTG20
HTG21
HTG22
MODE
12 ~ 18
8 ~ 2
Q
DIGITAL NOISE REDUCER
Y/C PROCESSOR

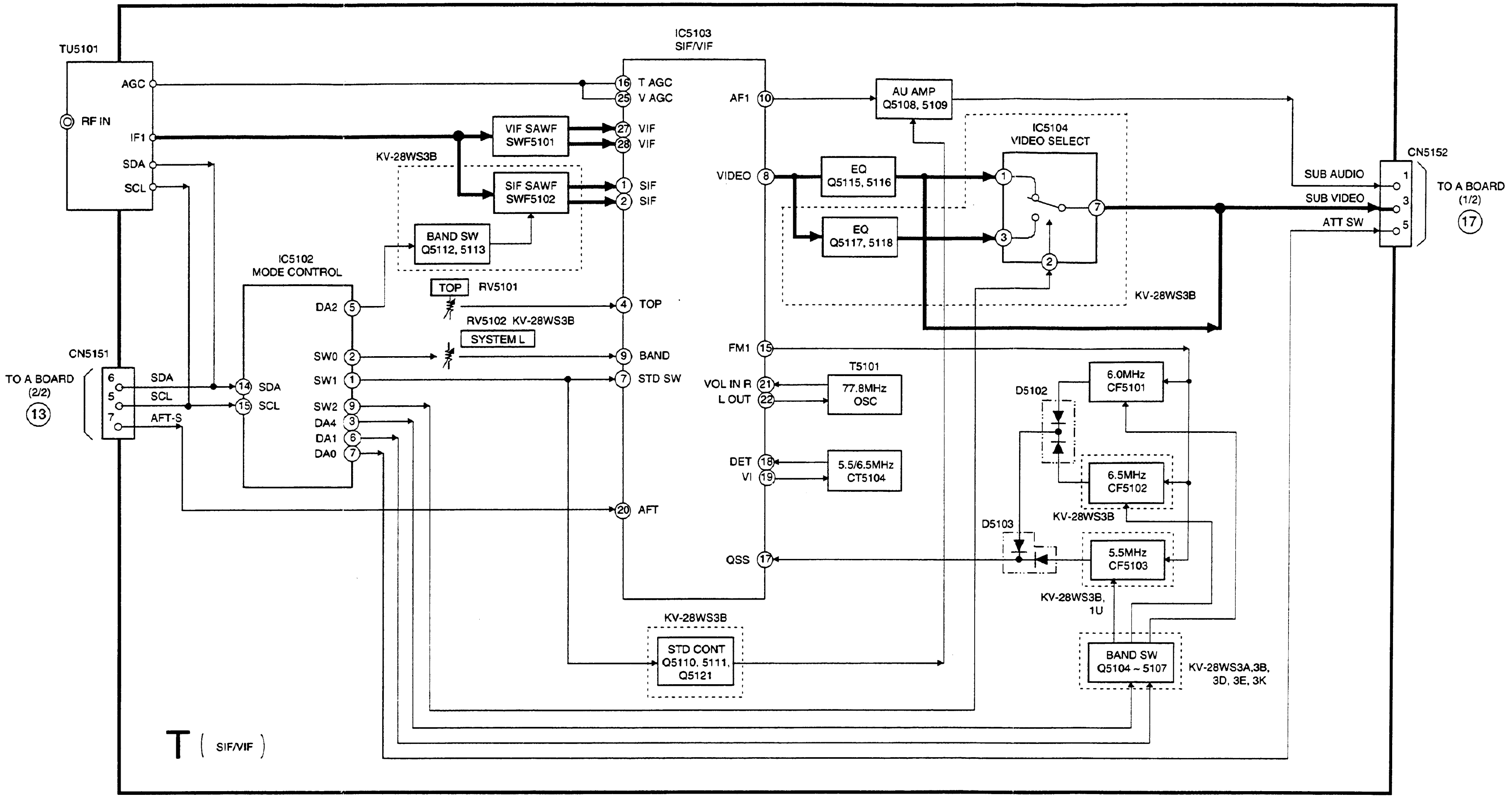
BLOCK DIAGRAM (6) KV-28WS3B

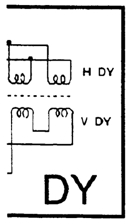

CN9001
B2
CHROMA DECODER,
SYNC SEPARATOR
Y OUT
B -Y OUT
R -Y OUT
IC9001
VIDEO
DECODER
VIDEO IN
VIDEO
Y
B - Y
R - Y
TO A BOARD
(1/2)
⑯
SDA
SCL
SSCP
X9002
3.58MHz
3.58
4.43
X9001
4.43MHz
IC9002
H/V SYNC
SEPARATOR
VIDEO
H PHASE
H -SAW
H -FB
H - SAW
Q9005-9007
SSCP
50/60
V OUT
V-FB
VCO
X9003
503kHz
50/60
CV SYNC
CHD

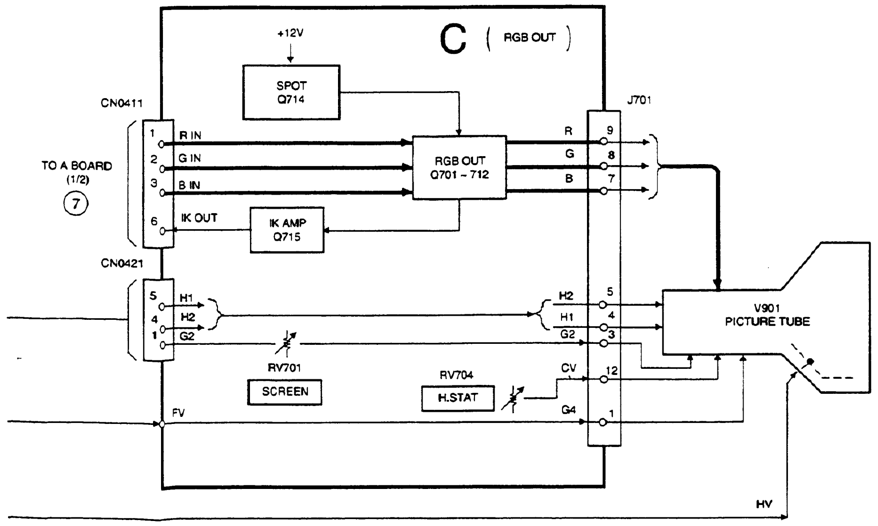
BLOCK DIAGRAM (7)

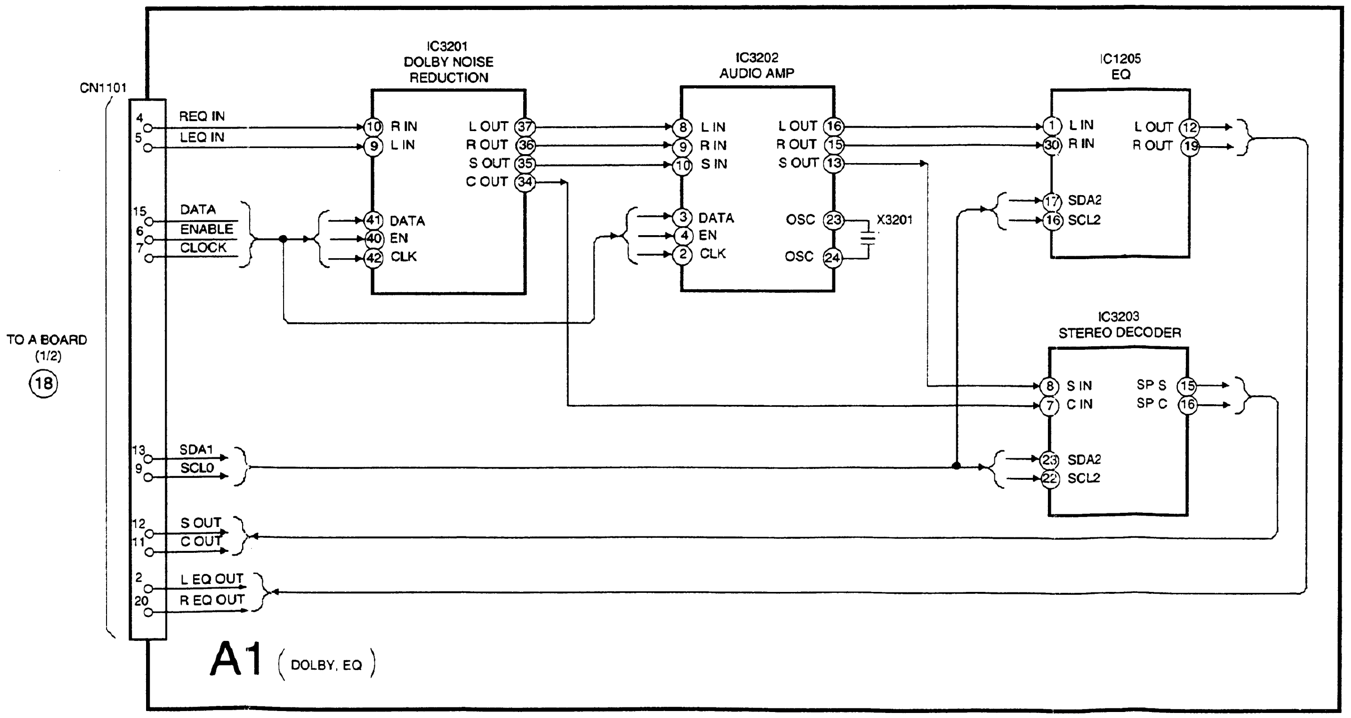

AC IN
CN0007
POWER-SW S651
CN0622
F1 (POWER SWITCH)
CN0722
CN0008
FOR CHECK
DGC CHK
DGC CHK
CN0009
DGC
AC IN
AC IN
LFT LF601
MAIN RECT D601
RELAY RY601
RY-DRIVE Q608
+15V
T601 PIT
D605 ±22V RECT
+22V
-22V
+13.5V RECT D607
+13.5V
D610 RECT
+B
+6.5V RECT D608
+6.5V
+135V RECT D609
+135V
PROTECT CONTROL Q606, 607
PROTECT
P.OFF
CN0701
+135V
T602 PRT
+B
PROTECT Q601-604
+B CONTROL IC601
POWER-OFF CONTROL Q605, 613, 614 Q616
POWER CONTROL Q610-612 Q615
IC602 POWER DET
G (POWER SUPPLY)
D (H OUT, PIN CORRECT)
CN0504
TO A BOARD (1/2) ⑨
H.DRIVE
ABL
PROTECT
H.P
H-OUT DRIVE Q801
HDT T801
H-OUT Q802
CN0501
PROTECT
P.OFF
H DAMP D802, 803
CN0503
TO A BOARD (1/2) ③
P.OFF
HLC T804
L806 PMC
+135V
CN0009
LEFT 1
CENTER 2
RIGHT 3
H CENTER D805, 806
CN0505
TO A BOARD (1/2) ⑧
2H TIM
PARA +
V -
V +
15V PULSE
IC801 DI-MOD
PIN DRIVE Q803
PMT T803
DY1
H+
H+
H-
H-
V-
V+
H DY
V DY
DY
CN0701
G2
H2
H1
T805 FBT
HV
D811 +200V RECT
+200V
+135V
H1
H2
D813 +15V RECT
+15V
-15V
D812 -15V RECT
FV
DFT T806, 807
L813
FV
HV
C (RGB OUT)
+12V
SPOT Q714
CN0411
TO A BOARD (1/2) ⑦
R IN
G IN
B IN
IK OUT
RGB OUT Q701 ~ 712
IK AMP Q715
J701
R
G
B
CN0421
H1
H2
G2
RV701 SCREEN
RV704 H.STAT
H2
H1
G2
CV
G4
FV
V901 PICTURE TUBE
HV

BLOCK DIAGRAM (8)

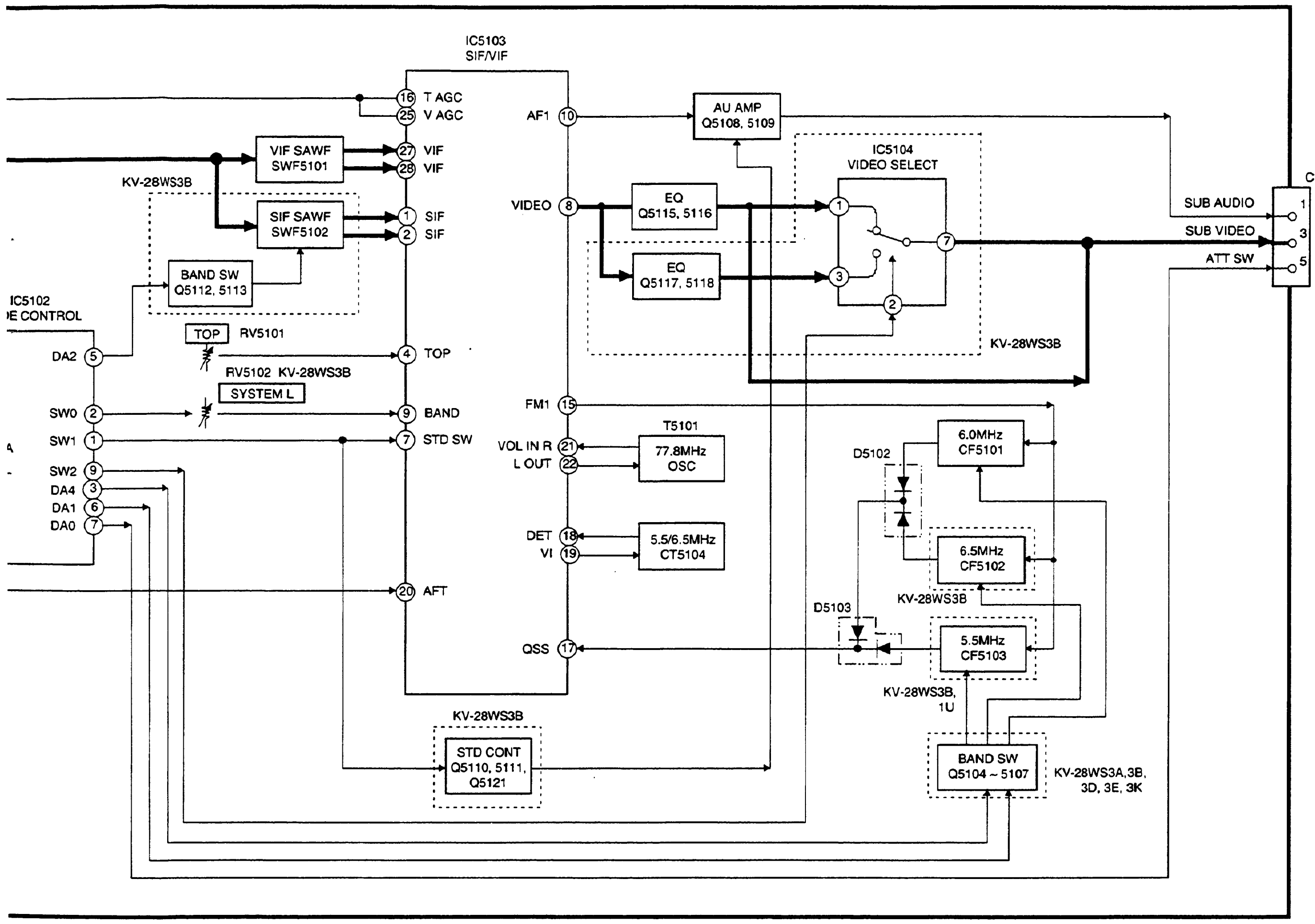

TU5101
RF IN
AGC
IF1
SDA
SCL
IC5103
SIF/VIF
16 T AGC
25 V AGC
27 VIF
28 VIF
1 SIF
2 SIF
4 TOP
9 BAND
7 STD SW
20 AFT
AF1 10
VIDEO 8
FM1 15
VOL IN R 21
L OUT 22
DET 18
VI 19
QSS 17
VIF SAWF
SWF5101
SIF SAWF
SWF5102
KV-28WS3B
BAND SW
Q5112, 5113
TOP RV5101
RV5102 KV-28WS3B
SYSTEM L
IC5102
MODE CONTROL
DA2 5
SW0 2
SW1 1
SW2 9
DA4 3
DA1 6
DA0 7
14 SDA
15 SCL
CN5151
TO A BOARD
(2/2)
13
6 SDA
5 SCL
7 AFT-S
AU AMP
Q5108, 5109
EQ
Q5115, 5116
EQ
Q5117, 5118
IC5104
VIDEO SELECT
1
3
7
2
KV-28WS3B
T5101
77.8MHz
OSC
5.5/6.5MHz
CT5104
D5102
6.0MHz
CF5101
6.5MHz
CF5102
KV-28WS3B
D5103
5.5MHz
CF5103
KV-28WS3B,
1U
KV-28WS3B
STD CONT
Q5110, 5111,
Q5121
BAND SW
Q5104 ~ 5107
KV-28WS3A,3B,
3D, 3E, 3K
CN5152
SUB AUDIO 1
SUB VIDEO 3
ATT SW 5
TO A BOARD
(1/2)
17
T (SIF/VIF)

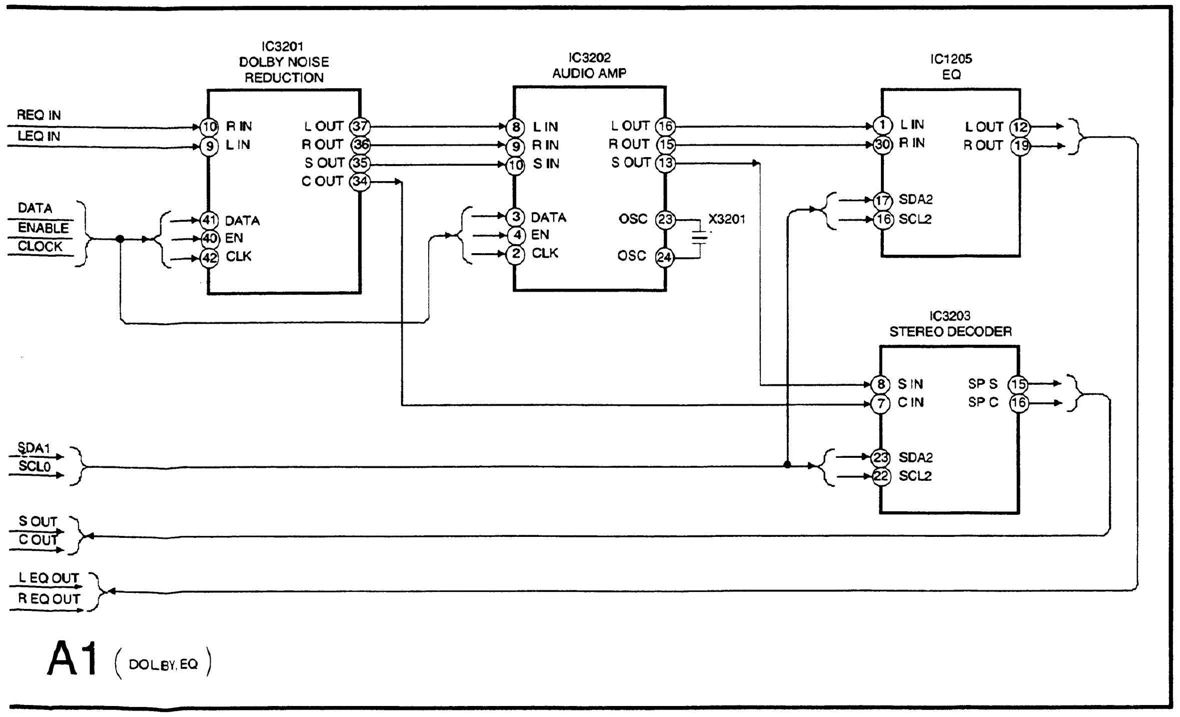



C (RGB OUT)
+12V
SPOT
Q714
CN0411
TO A BOARD
(1/2)
7
1 R IN
2 G IN
3 B IN
6 IK OUT
RGB OUT
Q701 – 712
IK AMP
Q715
J701
R 9
G 8
B 7
CN0421
5 H1
4 H2
1 G2
H2 5
H1 4
G2 3
CV 12
G4 1
RV701
SCREEN
RV704
H.STAT
FV
V901
PICTURE TUBE
HV


CN1101
TO A BOARD
(1/2)
18
4 REQ IN
5 LEQ IN
15 DATA
6 ENABLE
7 CLOCK
13 SDA1
9 SCL0
12 S OUT
11 C OUT
2 L EQ OUT
20 R EQ OUT
IC3201
DOLBY NOISE
REDUCTION
10 R IN
9 L IN
L OUT 37
R OUT 36
S OUT 35
C OUT 34
41 DATA
40 EN
42 CLK
IC3202
AUDIO AMP
8 L IN
9 R IN
10 S IN
L OUT 16
R OUT 15
S OUT 13
3 DATA
4 EN
2 CLK
OSC 23
OSC 24
X3201
IC1205
EQ
1 L IN
30 R IN
L OUT 12
R OUT 19
17 SDA2
16 SCL2
IC3203
STEREO DECODER
8 S IN
7 C IN
SP S 15
SP C 16
23 SDA2
22 SCL2
A1 (DOLBY, EQ)

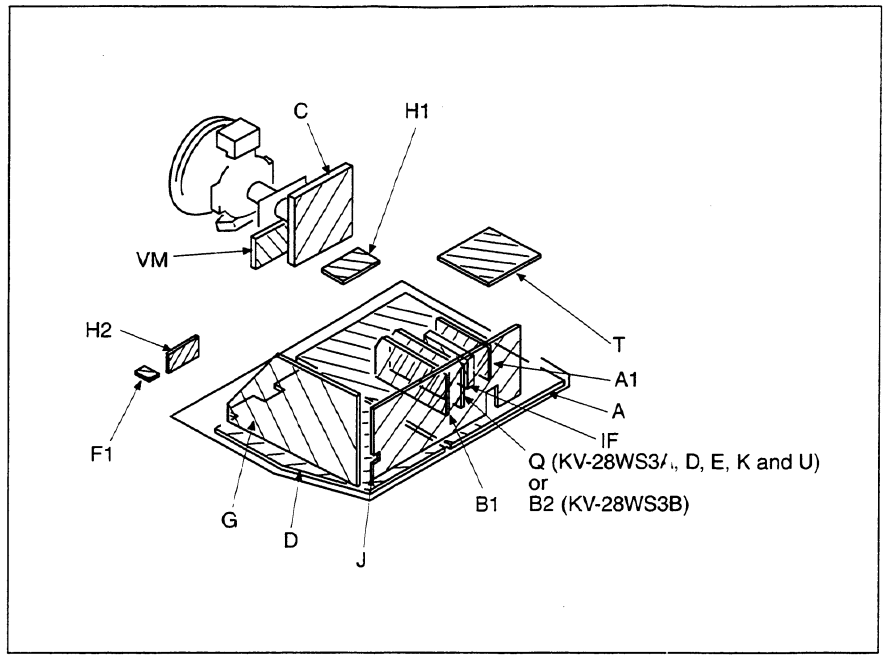
RAM (8)


IC5103
SIF/VIF
16 T AGC
25 V AGC
AF1 10
AU AMP
Q5108, 5109
VIF SAWF
SWF5101
27 VIF
28 VIF
KV-28WS3B
SIF SAWF
SWF5102
1 SIF
2 SIF
BAND SW
Q5112, 5113
VIDEO 8
EQ
Q5115, 5116
EQ
Q5117, 5118
IC5104
VIDEO SELECT
1
3
7
2
KV-28WS3B
CN5152
SUB AUDIO
SUB VIDEO
ATT SW
1
3
5
TO A BOARD
(1/2)
17
IC5102
E CONTROL
DA2 5
TOP
RV5101
4 TOP
RV5102 KV-28WS3B
SYSTEM L
SW0 2
SW1 1
SW2 9
DA4 3
DA1 6
DA0 7
9 BAND
7 STD SW
FM1 15
T5101
77.8MHz
OSC
VOL IN R 21
L OUT 22
DET 18
VI 19
5.5/6.5MHz
CT5104
20 AFT
QSS 17
6.0MHz
CF5101
D5102
6.5MHz
CF5102
KV-28WS3B
D5103
5.5MHz
CF5103
KV-28WS3B,
1U
KV-28WS3B
STD CONT
Q5110, 5111,
Q5121
BAND SW
Q5104 ~ 5107
KV-28WS3A,3B,
3D, 3E, 3K


IC3201
DOLBY NOISE
REDUCTION
REQ IN
LEQ IN
10 R IN
9 L IN
L OUT 37
R OUT 36
S OUT 35
C OUT 34
DATA
ENABLE
CLOCK
41 DATA
40 EN
42 CLK
IC3202
AUDIO AMP
8 L IN
9 R IN
10 S IN
L OUT 16
R OUT 15
S OUT 13
3 DATA
4 EN
2 CLK
OSC 23
OSC 24
X3201
IC1205
EQ
1 L IN
30 R IN
L OUT 12
R OUT 19
17 SDA2
16 SCL2
IC3203
STEREO DECODER
8 S IN
7 C IN
SP S 15
SP C 16
23 SDA2
22 SCL2
SDA1
SCL0
S OUT
C OUT
L EQ OUT
R EQ OUT

A1 (DOLBY.EQ)

5-2. CIRCUIT BOARDS LOCATION


C
H1
VM
H2
F1
G
D
J
B1
T
A1
A
IF
Q (KV-28WS3/., D, E, K and U)
or
B2 (KV-28WS3B)

5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  kΩ = 1000Ω , MΩ = 1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm
Rating electrical power ¼ W

- : nonflammable resistor.
- : internal component.
- ▭ : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth - ground.
- ⏚ : earth - chassis.
- ♯ : no mounted.

> **Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part number specified.

> **Note :** Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
> Ne les remplacer que par une piece portant le numero specifie.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ⨯	ADJUSTABLE RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

- Readings are taken with a colour-bar signal input.
- Readings are taken with 10MΩ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- ▬ : B+ bus.
- : signal path. (RF)

A BOARD

	IC	
	IC001	F-23
	IC002	F-1
	IC072	F-2
	IC201	H-21
	IC202	H-3
	IC251	H-8
	IC261	H-10
	IC351	D-11
	IC352	C-11
	IC572	D-20
	IC681	A-5
	IC682	A-7
	IC683	B-7
	IC684	B-7
	IC685	B-1
△	IC686	B-10
	IC1001	D-23
	IC1101	H-19
	IC1501	A-9
	IC1531	C-4
	IC2001	G-3
	IC2002	G-24
	IC2003	H-1
	IC2701	B-2

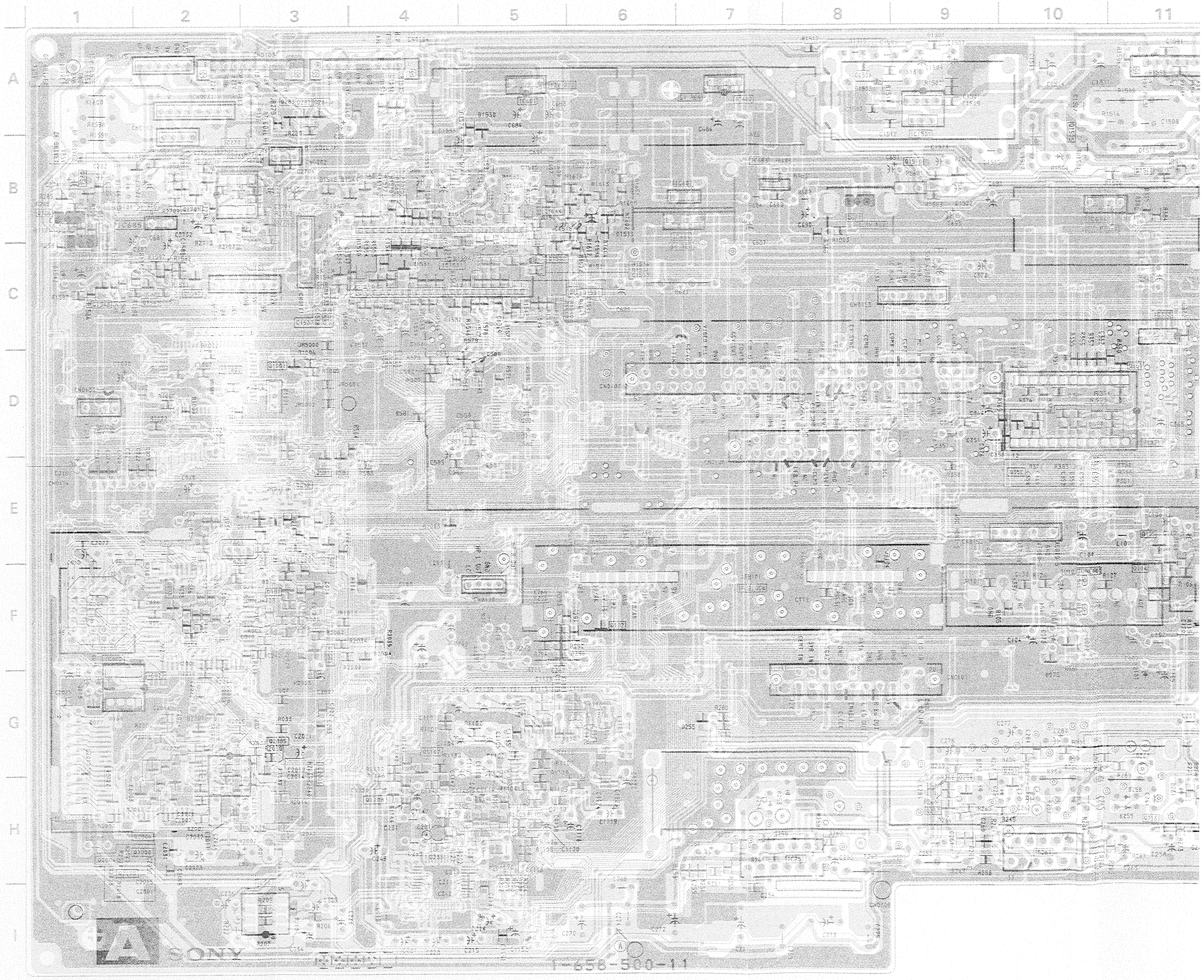
	TRANSISTOR	
	Q002	E-3
	Q005	E-23
	Q006	E-22
	Q007	E-22
	Q008	E-22
	Q102	F-6
	Q103	F-12
	Q106	B-1
	Q107	C-1
	Q110	F-11
○	Q203	E-6
	Q252	G-10
	Q253	H-11
	Q254	H-12
	Q255	G-12
	Q256	B-1
	Q257	H-9
	Q258	G-9
	Q281	A-3
	Q282	A-3
	Q351	D-11
	Q352	E-10
	Q571	E-20
	Q581	E-3
	Q681	B-8
	Q1001	D-3
●	Q1105	H-20
●	Q1106	I-20
●	Q1107	G-4
●	Q1108	H-4
	Q1505	B-10
	Q1506	B-12
	Q1507	A-12
	Q1508	A-12
	Q1510	B-9
	Q1511	B-14
	Q1512	B-11
	Q1531	C-6
	Q1532	C-5
	Q1533	C-20
	Q1544	B-5
	Q1545	B-6
	Q1547	C-2
	Q1548	C-1
	Q1549	C-2
	Q2001	F-3
	Q2002	G-1
	Q2004	H-1
	Q2005	G-3
	Q2006	H-2
	Q2008	H-2
	Q2701	B-2

	DIODE	
	D001	E-3
	D003	E-23
	D068	G-1
	D069	F-10
	D071	F-10
	D073	F-10
	D075	F-10
	D077	G-1
	D078	G-1
	D079	F-1
	D101	F-11
○	D201	H-5
	D251	H-9
	D252	G-9
	D253	H-7
	D254	H-7
	D255	G-7
	D256	H-10
	D257	H-10
	D258	H-11
	D259	H-11
	D260	G-11
	D261	H-11
	D262	G-10
	D263	H-11
	D351	D-10
	D581	E-3
	D1001	D-23
	D1002	D-23
	D1003	E-4
●	D1101	G-19
●	D1102	G-6
	D1503	A-8
	D1504	B-10
	D1505	B-12
	D1510	B-9
	D1511	B-11
	D1530	A-5
	D1533	C-3
	D1534	C-4
	D1536	A-21
	D1539	B-6
	D1542	C-1
	D1543	B-4
	D2001	G-2
	D2004	F-4
	D2701	B-2

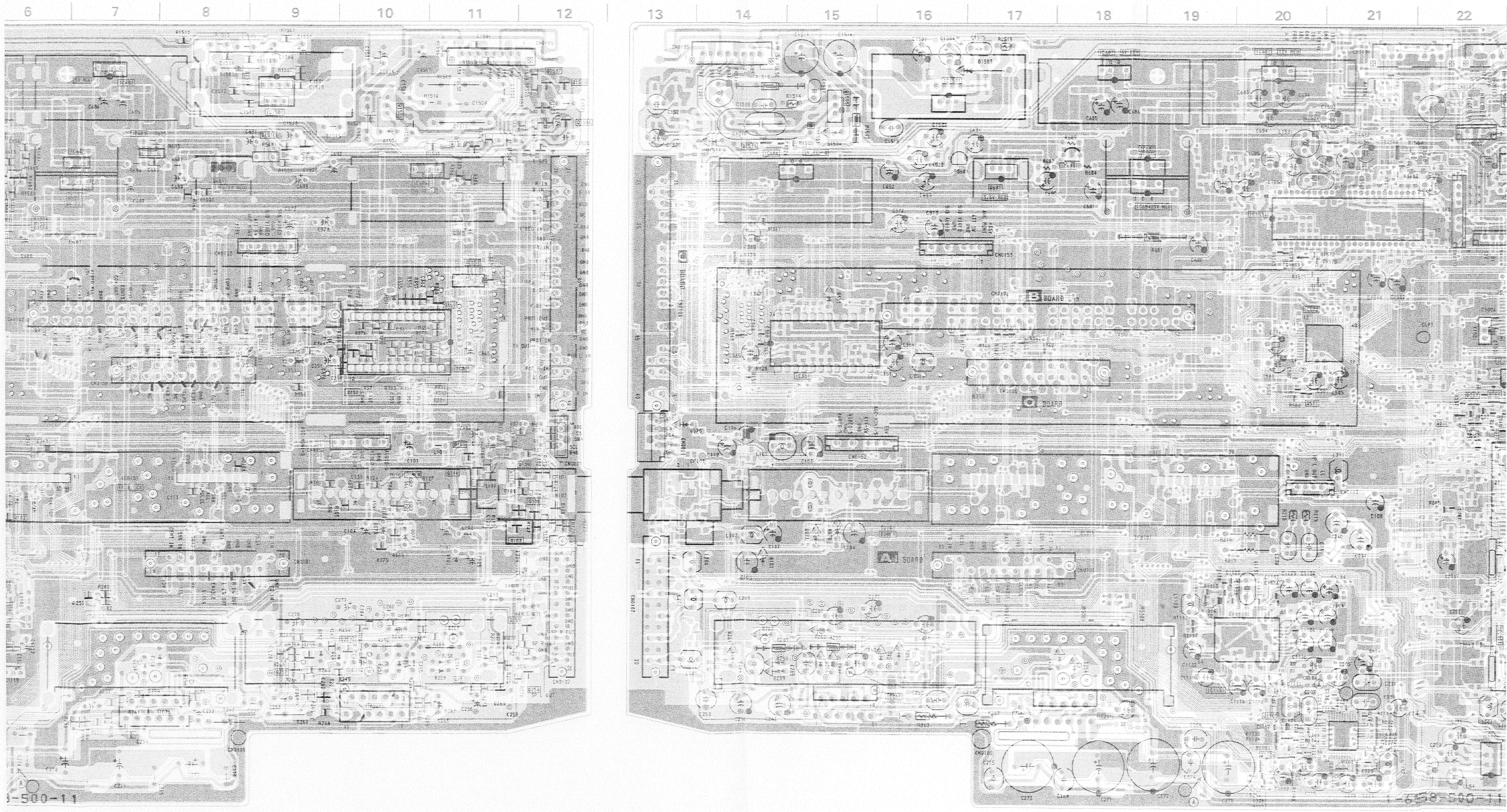
○ mark : KV-28WS3A,3B,3D,3E and 3K only
● mark : KV-28WS3B,3E and 3U only
△ mark : KV-28WS3A,3D,3E,3K and 3U only

A [RGB DECODER, CRT DRIVER, NICAM DECODER, MEGA TEXT, MICRO CONTROLLER]

— A Board — <Conductor Side>



— A Board — <Component Side>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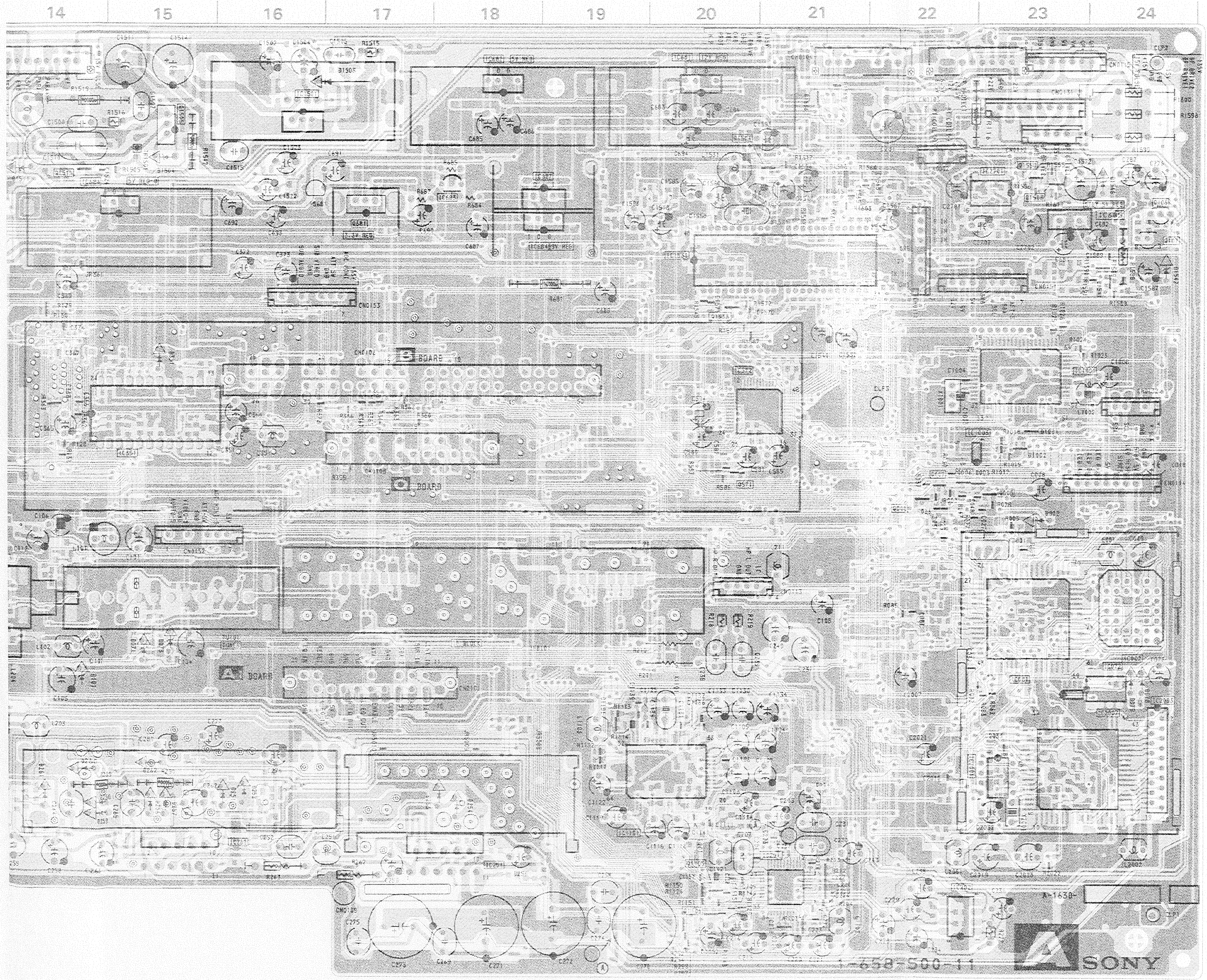
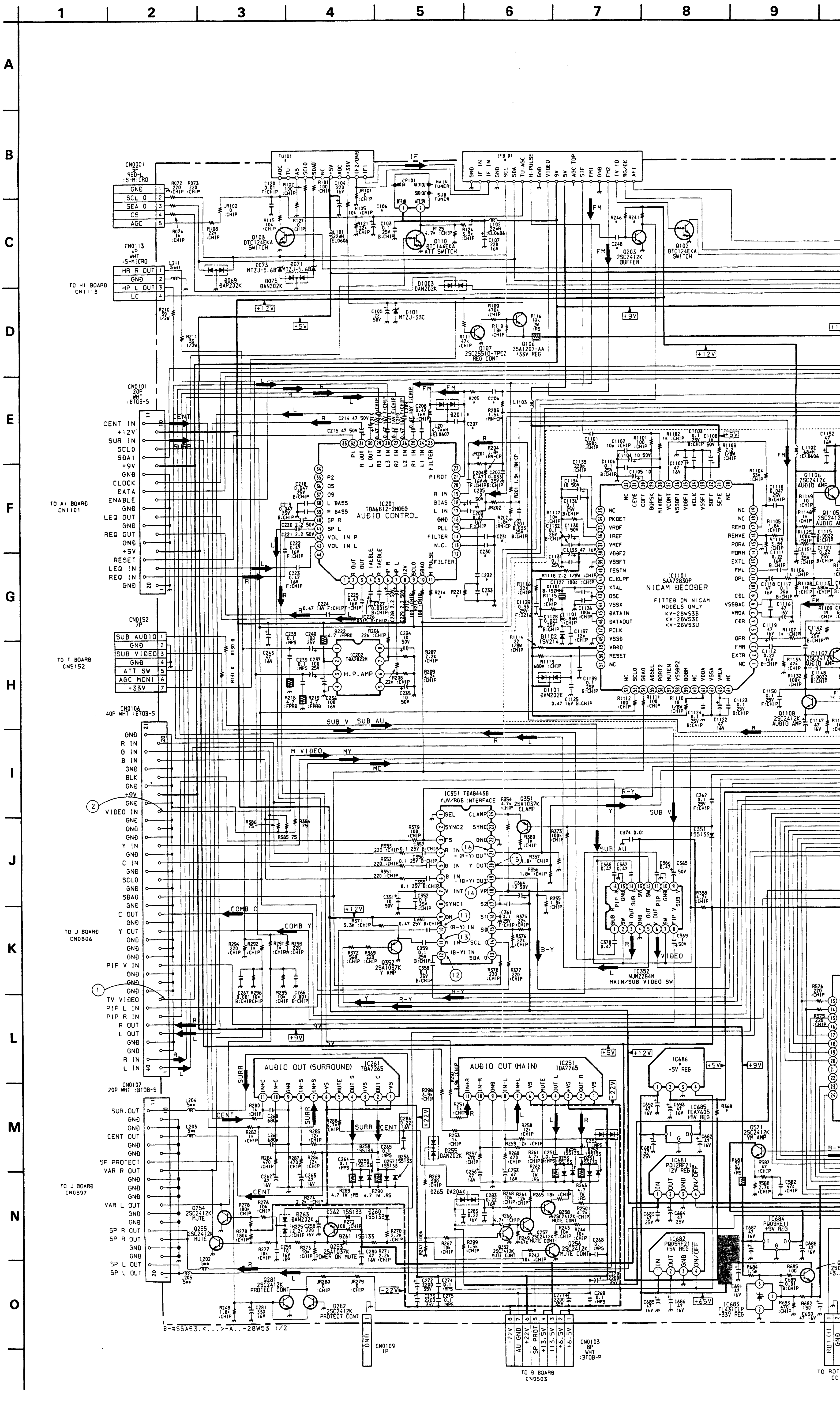
B BOARD
D BOARD
A1 BOARD

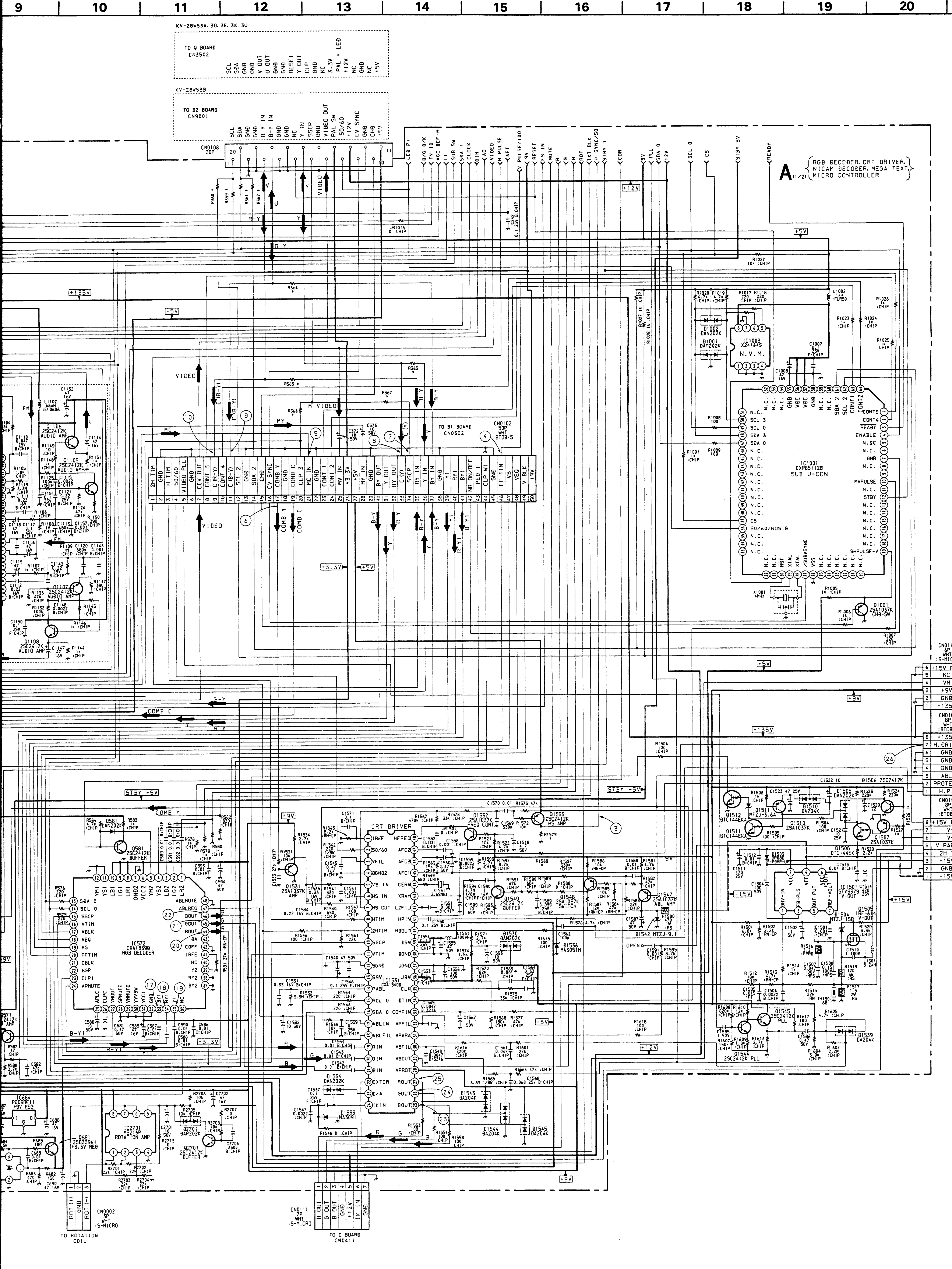
– <Component Side>



A BOARD * MARK

Model Ref. No.	28WS3A	28WS3B	28WS3D	28WS3E	28WS3K	28WS3U
C106	4.7MF 50V	100MF 16V	4.7MF 50V	4.7MF 50V	4.7MF 50V	4.7MF 50V
C206	0.0022MF	0.0022MF	0.0022MF	0.0022MF	0.0022MF	–
C207	0.0018MF	0.0018MF	0.0018MF	0.0018MF	0.0018MF	–
C230	1MF	1MF	1MF	1MF	1MF	–
C231	1MF	1MF	1MF	1MF	1MF	–
C232	0.0033MF	0.0033MF	0.0033MF	0.0033MF	0.0033MF	–
C233	680P	680P	680P	680P	680P	–
C248	150P	150P	150P	150P	150P	–
D201	DA204K	DA204K	DA204K	DA204K	DA204K	–
IC686	PQ05RF21	–	PQ05RF21	PQ05RF21	PQ05RF21	PQ05RF21
IFB101	IFH-389WE	IFH-389FX	IFH-389WE	IFH-389WE	IFH-389EE	IFH-395GB
L1103	–	68UH	–	68UH	–	68UH
JR201	0 : CHIP	–	0 : CHIP	–	0 : CHIP	–
JR202	0 : CHIP	–	0 : CHIP	–	0 : CHIP	–
Q203	2SC2412K	2SC2412K	2SC2412K	2SC2412K	2SC2412K	–
R205	5.6K	5.6K	5.6K	5.6K	5.6K	–
R214	100	100	100	100	100	–
R221	56K	56K	56K	56K	56K	–
R241	4.7K	4.7K	4.7K	4.7K	4.7K	–
R246	100K	100K	100K	100K	100K	–
R359	–	–	–	0 : CHIP	0 : CHIP	0 : CHIP
R360	–	0 : CHIP	–	–	–	–
R361	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R362	–	0 : CHIP	–	–	–	–
R363	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R364	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R365	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R366	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R367	–	0 : CHIP	–	–	–	–
R368	–	0 : CHIP	–	–	–	–
R1003	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R1569	10K	10K	10K	10K	–	10K
R1572	10K	10K	10K	10K	–	10K
R1579	2.2K	2.2K	2.2K	2.2K	–	2.2K
TU101	UV1316	UV1316	UV1316	UV1316	UV1316	U1344


TU101
IFB 01
CN0001 5P RED-L :S-MICRO
CN0113 4P WHT :S-MICRO
TO HI BOARD CN1113
CN0101 20P WHT :BTOB-S
TO A1 BOARD CN1101
CN0152 7P
TO T BOARD CN5152
CN0106 40P WHT :BTOB-S
TO J BOARD CN0806
CN0107 20P WHT :BTOB-S
TO J BOARD CN0807
Q103 DTC124EKA SWITCH
Q110 DTC144EKA ATT SWITCH
Q203 2SC2412K BUFFER
Q102 DTC124EKA SWITCH
Q107 2SC2551O-TPE2 REG CONT
Q106 2SA1207-AA +33V REG
IC201 TDA6812-2MGEG AUDIO CONTROL
IC202 TDA2822M H.P. AMP
IC1101 SAA7283GP NICAM DECODER
FITTED ON NICAM MODELS ONLY KV-28WS3B KV-28WS3E KV-28WS3U
Q1106 2SC2412K AUDIO AMP
Q1108 2SC2412K AUDIO AMP
IC351 TDA8443B YUV/RGB INTERFACE
Q351 2SA1037K CLAMP
Q352 2SA1037K Y AMP
IC352 NJM2284M MAIN/SUB VIDEO SW
AUDIO OUT (SURROUND) IC261 TDA7265
AUDIO OUT (MAIN) IC251 TDA7265
IC686 +5V REG
IC685 TEA7605 +5V REG
IC681 PQ12RF21 12V REG
IC682 PQ05RF21 +5V REG
IC684 PQ09RE11 +9V REG
IC683 TL431CLP +33V REG
Q571 2SC2412K VM AMP
Q254 2SC2412K MUTE
Q255 2SC2412K MUTE
Q281 2SC2412K PROTECT CONT
Q282 2SC2412K PROTECT CONT
Q253 2SA1037K POWER ON MUTE
Q252 MUTE CONT
Q256 2SC2412K MUTE CONT
Q257 2SC2412K MUTE CONT
Q258 2SC2412K MUTE CONT
CN0109 1P
CN0103 8P WHT :BTOB-P
TO D BOARD CN0503
TO ROT
B-#55AE3.<...>-A..-28W53 1/2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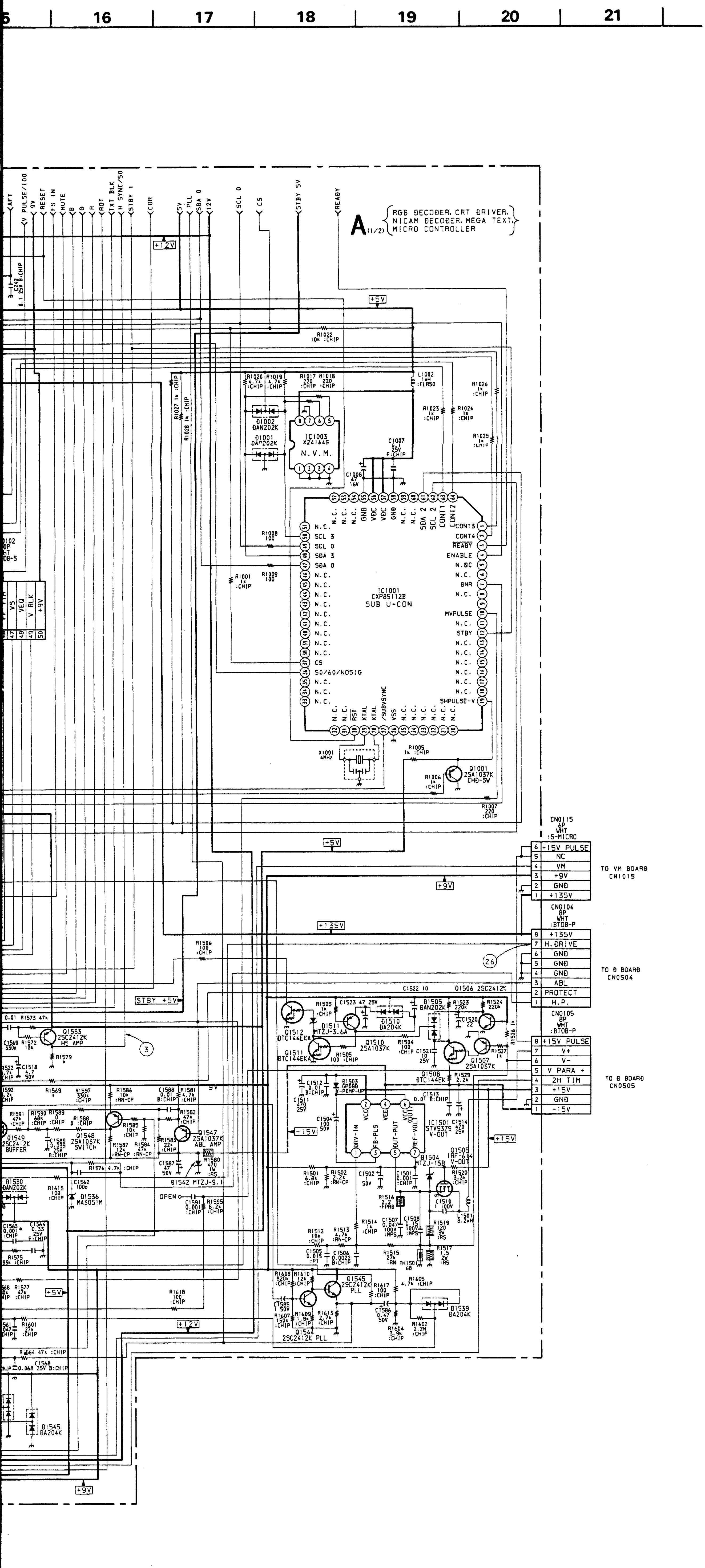
KV-28WS3A, 3D, 3E, 3K, 3U
TO Q BOARD CN3502
KV-28WS3B
TO B2 BOARD CN9001
CN0108 20P
A (1/2) RGB DECODER, CRT DRIVER, NICAM DECODER, MEGA TEXT, MICRO CONTROLLER
IC1003 X24164S N.V.M.
IC1001 CXP85112B SUB U-CON
Q1001 2SA1037K CHB-SW
TO B1 BOARD CN0302
CN0102 50P WHT BTOB-S
IC572 CXA1839Q RGB DECODER
Q581 2SC2412K BUFFER
Q1106 2SC2412K AUDIO AMP
Q1105 2SC2412K AUDIO AMP
Q1107 2SC2412K AUDIO AMP
Q1108 2SC2412K AUDIO AMP
IC1531 CXA1840S CRT DRIVER
Q1531 2SA1037K AMP
Q1532 2SA1037K FREQ CONT
Q1533 2SC2412K HS AMP
Q1549 2SC2412K BUFFER
Q1548 2SA1037K SWITCH
Q1547 2SA1037K ABL AMP
IC1501 STV9379 V-OUT
Q1544 2SC2412K PLL
Q1545 2SC2412K PLL
IC2701 M5216P ROTATION AMP
Q2701 2SC2412K BUFFER
Q681 2SD2396H +3.3V REG
IC684 PQ09RE11 +9V REG
CN0002 3P WHT S-MICRO
TO ROTATION COIL
CN0111 7P WHT S-MICRO
TO C BOARD CN0411
+135V
+5V
+9V
+12V
+3.3V
-15V
+15V
STBY +5V
VIDEO
COMB Y
COMB C
B-Y
R-Y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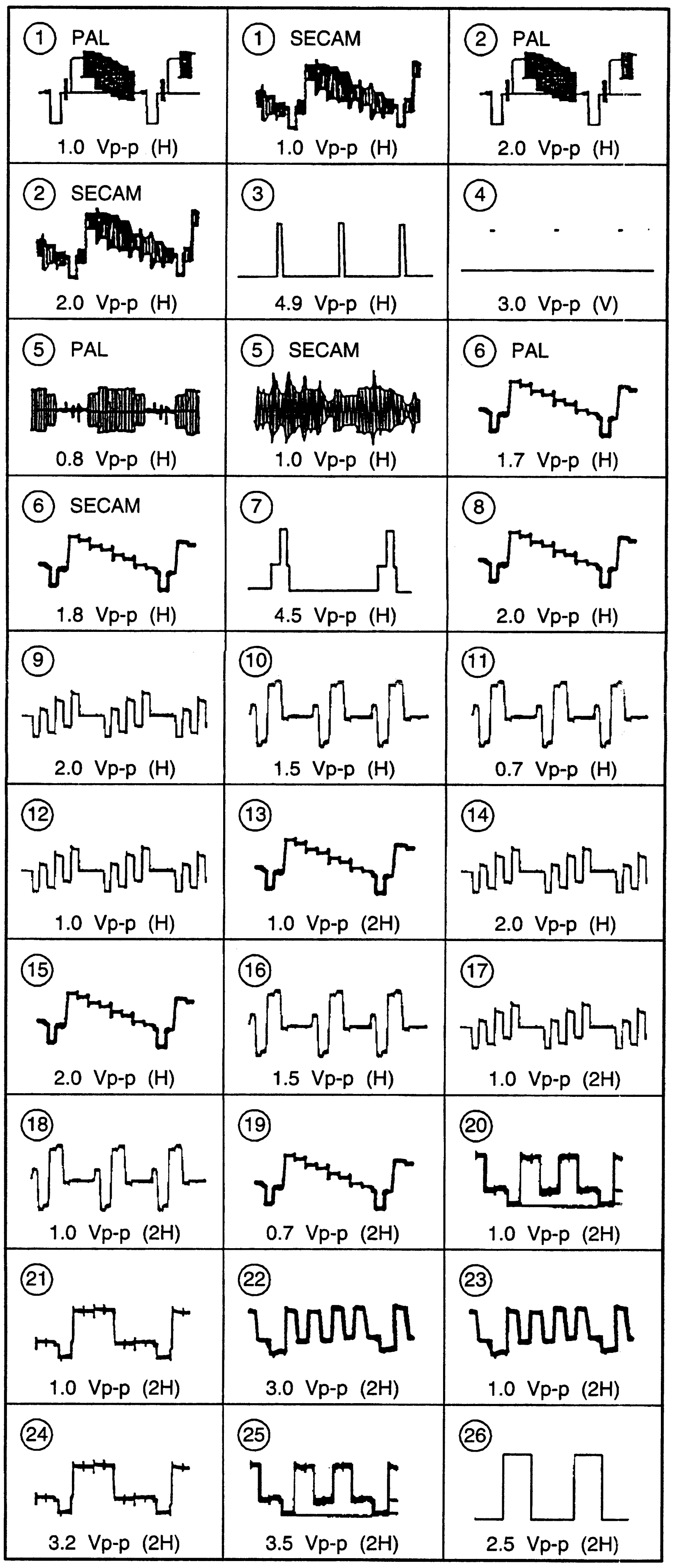
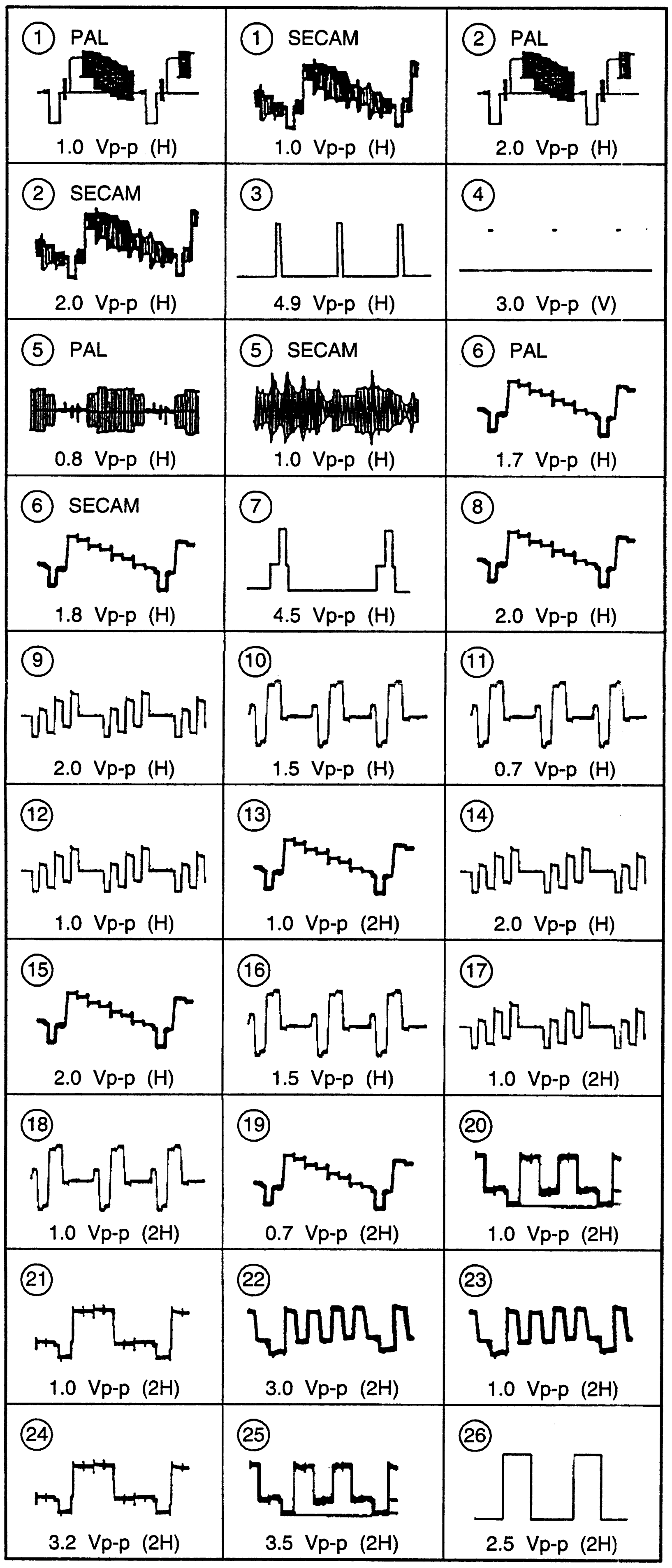
A(1/2) RGB DECODER, CRT DRIVER, NICAM DECODER, MEGA TEXT, MICRO CONTROLLER
AFT
V PULSE/100
9V
RESET
FS IN
MUTE
B
G
R
ROT
TXT BLK
H SYNC/50
STBY 1
COR
5V
PLL
SDA 0
12V
SCL 0
CS
STBY 5V
READY
+12V
+5V
IC1003 X24164S N.V.M.
D1002 DAN202K
D1001 DAP202K
L1002 1mH FLR50
C1007 0.1 25V F:CHIP
IC1001 CXP85112B SUB U-CON
N.C.
SCL 3
SCL 0
SDA 3
SDA 0
CS
50/60/NOSIG
CONT3
CONT4
READY
ENABLE
N.BC
BNR
MVPULSE
STBY
SHPULSE-V
VSS
XTAL
EXTAL
RST
X1001 4MHz
Q1001 2SA1037K CHB-SW
CN0115 6P WHT :S-MICRO
+15V PULSE
NC
VM
+9V
GND
+135V
TO VM BOARD CN1015
CN0104 8P WHT :BTOB-P
+135V
H. DRIVE
GND
ABL
PROTECT
H.P.
TO D BOARD CN0504
CN0105 8P WHT :BTOB-P
+15V PULSE
V+
V-
V PARA +
2H TIM
+15V
-15V
TO D BOARD CN0505
STBY +5V
+9V
+135V
Q1533 2SC2412K HS AMP
Q1549 2SC2412K BUFFER
Q1548 2SA1037K SWITCH
Q1547 2SA1037K ABL AMP
D1542 MTZJ-9.1
D1530 DAN202K
D1536 MA3051M
Q1512 DTC144EKA
Q1511 DTC144EKA
D1511 MTZJ-3.6A
Q1510 2SA1037K
D1510 DA204K
D1505 DAN202K
Q1506 2SC2412K
Q1507 2SA1037K
Q1508 DTC144EK
D1503 OP080 V-PUMP-UP
IC1501 STV9379 V-OUT
DRV-IN
VCC
B-PLS
VEE
OUT-PUT
VCC
REF-VOLT
D1504 MTZJ-15B
D1505 IRF-614 V-OUT
-15V
+15V
L1501 8.2mH
TH1501 68
Q1545 2SC2412K PLL
Q1544 2SC2412K PLL
D1539 DA204K
D1545 DA204K
OPEN
+5V
+12V
+9V
26
3

WAVEFORMS A BOARD



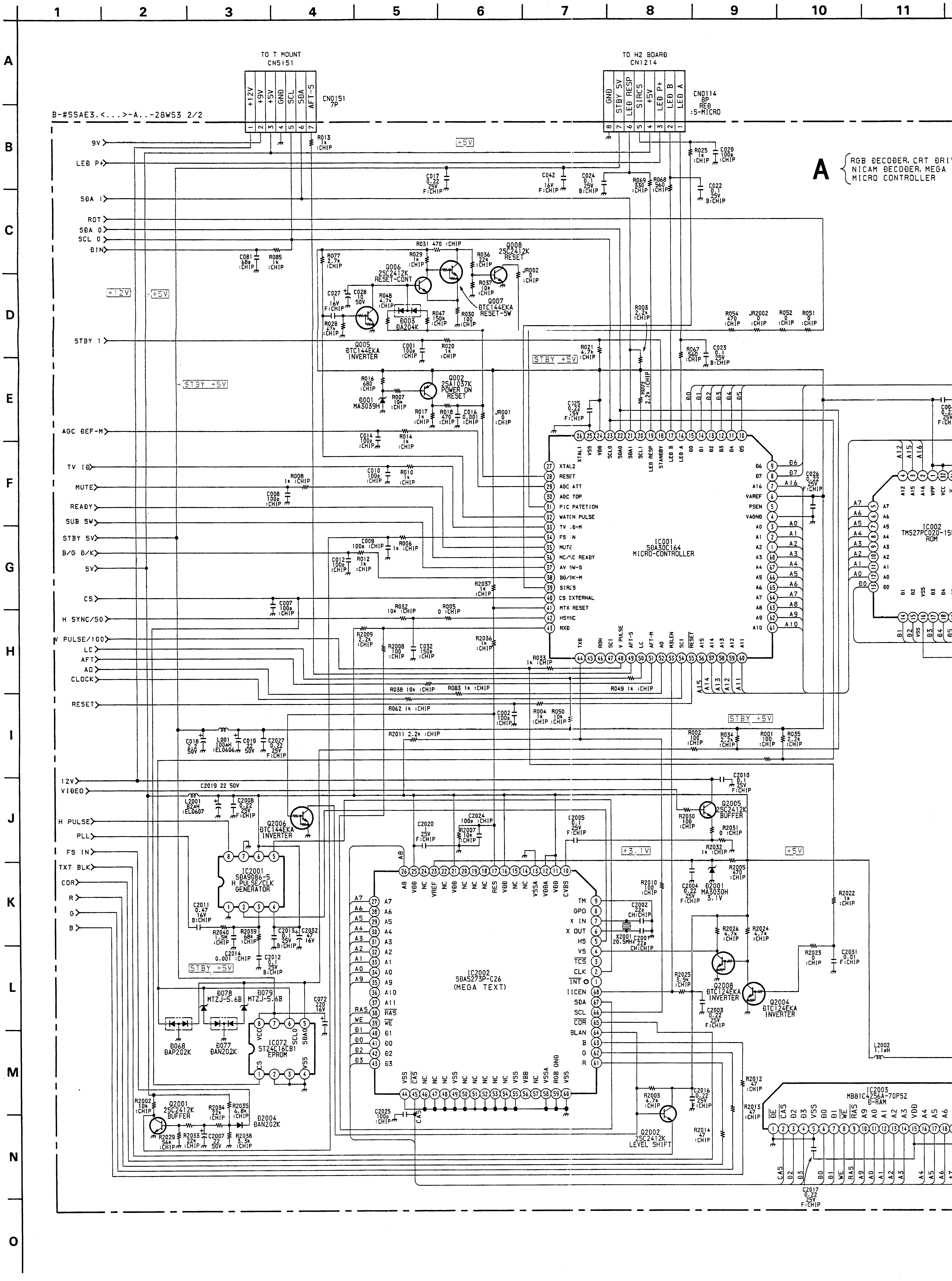
WAVEFORMS A BOARD

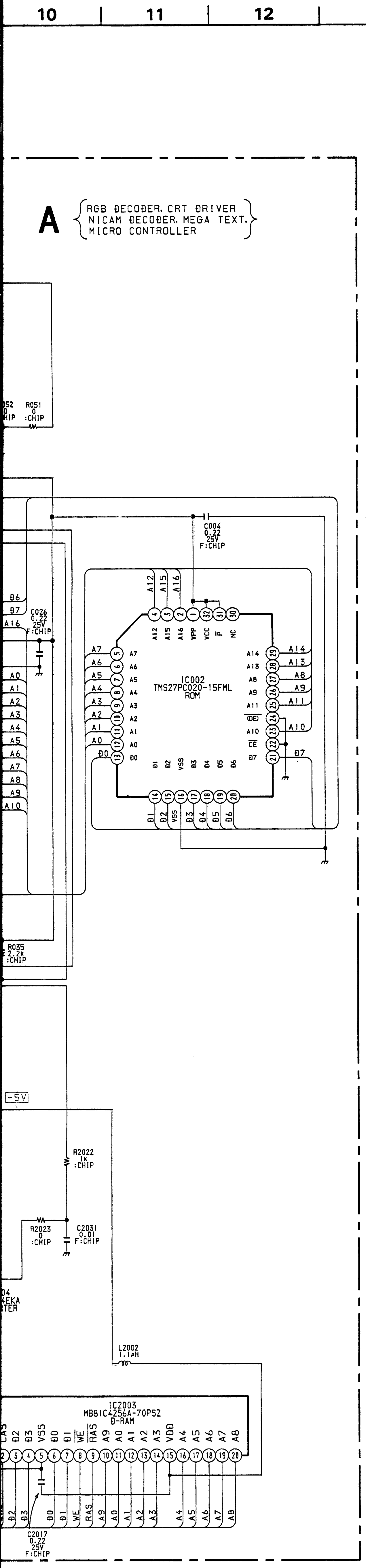

① PAL
1.0 Vp-p (H)
① SECAM
1.0 Vp-p (H)
② PAL
2.0 Vp-p (H)
② SECAM
2.0 Vp-p (H)
③
4.9 Vp-p (H)
④
3.0 Vp-p (V)
⑤ PAL
0.8 Vp-p (H)
⑤ SECAM
1.0 Vp-p (H)
⑥ PAL
1.7 Vp-p (H)
⑥ SECAM
1.8 Vp-p (H)
⑦
4.5 Vp-p (H)
⑧
2.0 Vp-p (H)
⑨
2.0 Vp-p (H)
⑩
1.5 Vp-p (H)
⑪
0.7 Vp-p (H)
⑫
1.0 Vp-p (H)
⑬
1.0 Vp-p (2H)
⑭
2.0 Vp-p (H)
⑮
2.0 Vp-p (H)
⑯
1.5 Vp-p (H)
⑰
1.0 Vp-p (2H)
⑱
1.0 Vp-p (2H)
⑲
0.7 Vp-p (2H)
⑳
1.0 Vp-p (2H)
㉑
1.0 Vp-p (2H)
㉒
3.0 Vp-p (2H)
㉓
1.0 Vp-p (2H)
㉔
3.2 Vp-p (2H)
㉕
3.5 Vp-p (2H)
㉖
2.5 Vp-p (2H)

Ref.No.	Pin No.	Voltage (V)	Ref.No.	Pin No.	Voltage (V)	Ref.No.	Pin No.	Voltage (V)
IC1001	1	0		44	GND		5	3.6
	2	0		45-47	2.1		6	3.0
	3	5.0		48	GND		7	3.1
	4	4.0		49-50	4.4		8	1.7
	5-6	-		51-52	-		9	1.8
	7	0		53-54	4.0		10	0.8
	8-9	-		55-60	-		11	0.5
	10	0.2		61	4.4		12	GND
	11	-		62	GND		13	9.0
	12	1.5		63	2.2		14	0
	13-18	-		64	-		15	3.8
	19	1.0	IC201	1	0		16	4.0
	20-25	-		2-7	6.1		17	4.4
	26	GND		8	12.0		18	8.7
	27	2.0		9-10	4.0		19-21	3.6
	28	2.5		11	0.1		22	0.8
	29	2.5		12	0		23	2.4
	30	4.0		13-15	3.0		24	5.0
	31-54	-		16	0		25	2.1
	55	GND		17-19	6.1		26	2.2
	56	5.0		20	0		27	2.1
	57	5.0		21	6.1		28	8.0
	58	GND		22	0		29-32	4.0
	59-60	-		23-31	6.1		33	5.1
	61	6.3		32-35	0		34	0.2
	62	4.2		36-43	6.1		35	2.4
	63	0		44	0		36	9.0
	64	0	IC202	1	5.4		37	GND
IC1101	1-2	-		2	*12.0*		38	*0*
	3	1.0		3	5.4		39	5.0
	4	2.2		4	GND		40	2.1
	5-6	-		5	0.5		41	2.2
	7	2.2		6-7	0		42	4.2
	8	0		8	0.5		43	0
	9-10	-	IC2701	1-3	4.4		44	-
	11	2.2		4.0	–		45-47	4.6
	12	1.0		5-7	–		48	4.4
	13-14	-		8.0	0	IC1501	1	2.2
	15	GND		9.0	0.2		2	14.0
	16	2.2	IC1003	1-4	GND		3	-14.0
	17	4.0		5-6	5.0		4	-16.0
	18-21	-		7	GND		5	-1.4
	22	2.2		8	5.0		6	14.5
	23	0	IC251/261	1	-20.0		7	2.2
	24	-		2	0	IC681	1	13.3
	25	2.2		3	20.0		2	12.0
	26	-		4	0		3	GND
	27-30	2.1		5	10.0		4	2.3
	31-33	-		6	-20.0	IC682	1	5.7
	34	1.8		7-8	0		2	5.0
	35-37	2.1		9	GND		3	GND
	38	4.1		10-11	0		4	2.3
	39	GND	IC1531	1	3.7	IC683	1	2.4
	40	-		2	0.3		2	GND
	41	1.7		3	5.8		3	4.0
	42	3.1		4	GND			
	43	2.1				All Voltages are indicated in Volts DC		

Ref.No.	Pin No.	Voltage (V)
IC684	1	11.9
	2	GND
	3	9.0
IC685	1	5.8
	2	GND
	3	5.0
IC686	1	5.6
	2	5.0
	3	GND
	4	2.3
IC572	1-3	6.0
	6	9.0
	7	GND
	8-10	9.0
	11-12	GND
	13-14	4.0
	15	0.8
	16	0.6
	17	0.5
	18-20	0.3
	21-22	NC
	23	0.2
	25	4.0
	26	4.7
	28-30	GND
	31	9.0
	32	GND
	33-35	4.4
	37-39	GND
	41	2.5
	42	GND
	44-45	2.7
	46	2.6
	47	8.7
	48	NC

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q102	4.7	0	0
Q103	0	1.7	0
Q106	31.4	32.0	32.0
Q107	0.5	0	0
Q203	0.6	0.1	0
Q251	0.6	0	0
Q252	0	0.6	0
Q253	13.4	-0.4	13.4
Q254	-2.1	0	0
Q255	-2.0	0	0
Q256	-0.1	2.3	0
Q257	0.6	0	0
Q259	21.5	10.5	21.1
Q260	0	21.5	0
Q351	2.8	1.7	3.5
Q352	1.8	0	2.5
Q571	6.4	9.0	5.7
Q581	0.6	0	0
Q1001	0.3	0	1.0
Q1105	3.0	5.6	2.4
Q1107	3.0	5.8	2.4
Q1108	5.8	11.8	5.2
Q1502	0.4	9.0	-3.7
Q1531	5.6	0	6.1
Q1532	9.0	4.4	9.0
Q1533	0.5	0.4	0
Q1544	1.1	4.5	0.6
Q1545	4.5	9.0	4.0
Q1447	4.4	-9.0	5.0
Q1548	6.4	9.0	5.7
Q1549	0.9	-0.2	1.4
Q1532	-1.2	3.0	-1.8


B-#SSAE3.<...>-A..-28WS3 2/2
TO T MOUNT
CN5151
+12V
+9V
+5V
GND
SCL
SDA
AFT-S
CN0151
7P
TO H2 BOARD
CN1214
GND
STBY 5V
LED RESP
SIRCS
+5V
LED P+
LED B
LED A
CN0114
8P
RED
:S-MICRO
A
RGB DECODER, CRT DRI
NICAM DECODER, MEGA
MICRO CONTROLLER
9V
LED P+
SDA 1
ROT
SDA 0
SCL 0
DIN
STBY 1
AGC DEF-M
TV ID
MUTE
READY
SUB SW
STBY 5V
B/G D/K
5V
CS
H SYNC/50
V PULSE/100
LC
AFT
AO
CLOCK
RESET
12V
VIDEO
H PULSE
PLL
FS IN
TXT BLK
COR
R
G
B
+12V
+5V
STBY +5V
+3.1V
Q006
2SC2412K
RESET-CONT
Q008
2SC2412K
RESET
Q007
DTC144EKA
RESET-SW
Q005
DTC144EKA
INVERTER
Q002
2SA1037K
POWER ON
RESET
D001
MA3039H
D003
DA204K
IC001
SDA30C164
MICRO-CONTROLLER
IC002
TMS27PC020-15
ROM
IC2001
SDA9086-5
H PULSE/CLK
GENERATOR
Q2006
DTC144EKA
INVERTER
IC2002
SDA5273P-C26
(MEGA TEXT)
X2001
20.5MHz
Q2005
2SC2412K
BUFFER
D2001
MA3030H
3.1V
Q2008
DTC124EKA
INVERTER
Q2004
DTC124EKA
INVERTER
Q2002
2SC2412K
LEVEL SHIFT
D078
MTZJ-5.6B
D079
MTZJ-5.6B
D068
DAP202K
D077
DAN202K
IC072
ST24C16CB1
EPROM
Q2001
2SC2412K
BUFFER
D2004
DAN202K
IC2003
MB81C4256A-70PSZ
D-RAM
L001
100μH
:EL0606
L2001
82μH
:EL0607
L2002
1.1μH


10
11
12
13
A
RGB DECODER, CRT DRIVER
NICAM DECODER, MEGA TEXT,
MICRO CONTROLLER
R051
0
:CHIP
C004
0.22
25V
F:CHIP
C026
0.22
25V
F:CHIP
IC002
TMS27PC020-15FML
ROM
A12
A15
A16
VPP
VCC
NC
A7
A6
A5
A4
A3
A2
A1
A0
D0
A14
A13
A8
A9
A11
OE
A10
CE
D7
D1
D2
VSS
D3
D4
D5
D6
R035
2.2k
:CHIP
+5V
R2022
1k
:CHIP
R2023
0
:CHIP
C2031
0.01
F:CHIP
L2002
1.1µH
IC2003
MB81C4256A-70PSZ
D-RAM
CAS
D2
D3
VSS
D0
D1
WE
RAS
A9
A0
A1
A2
A3
VDD
A4
A5
A6
A7
A8
C2017
0.22
25V
F:CHIP

Ref.No.	Pin No.	Voltage (V)
IC001	6	5.0
	16-17	3.7
	18	2.5
	19	3.6
	20-21	5.0
	22-23	4.0
	24	5.0
	26	2.1
	27	2.3
	28	4.7
	29	0
	30	4.8
	31	2.4
	32	1.6
	34	5.0
	36	5.0
	37	3.4
	38	3.3
	39-40	5.0
	41	0.1
	42	0.4
	43	5.0
	44	4.8
	48	0.3
	49	1.3
	50	5.0
	51	2.4
	52	5.0
	53	4.5
	54	5.0
	55	3.8
IC002	1	5.0
	31-32	5.0
IC2002	2	1.5
	4-5	0.1
	6-7	1.7
	10	0.8
	11-12	5.0
	16	5.0
	17	0.1
	21	5.0
	23	3.0
	25	5.0
	45	4.4
	65	0.6
	66-67	5.0
	68	4.5
IC2003	15	4.5

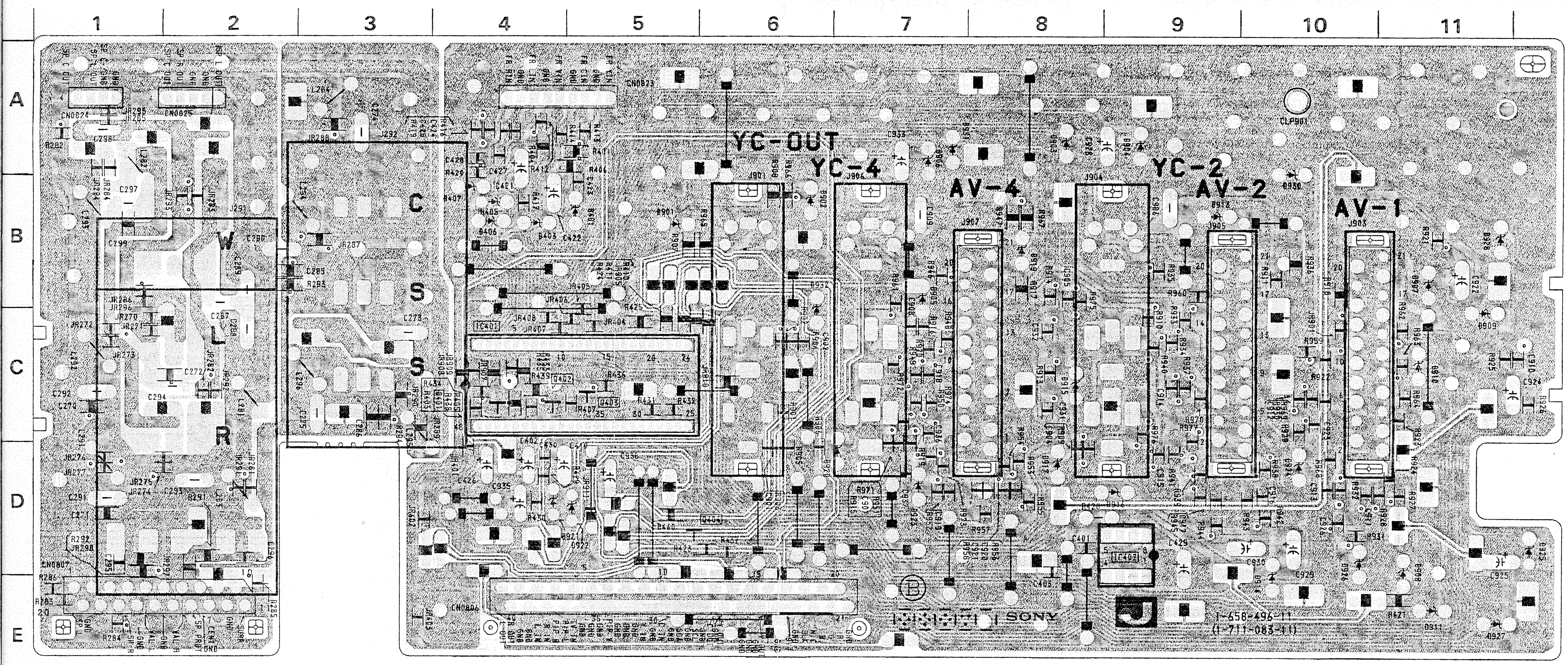
Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q002	4.2	4.7	4.8
Q005	-0.1	0	0
Q006	0	4.8	0.8
Q007	4.8	0.9	0.8
Q008	0.3	4.8	0
Q2001	0.3	5.0	0
Q2002	0	4.8	0
Q2004	0.3	4.0	0
Q2005	3.8	12.0	3.1
Q2006	0.1	0	0
Q2008	4.0	0.1	0

J BOARD

IC	
IC401	C-4
IC402	D-9
TRANSISTOR	
Q401	C-4
Q402	C-4
Q403	C-5
Q404	D-6
DIODE	
D401	B-5
D403	B-4
D405	B-4
D406	B-4
D407	B-4
D901	B-5
D902	B-6
D903	A-8
D904	A-9
D905	B-7
D906	A-7
D907	B-11
D908	E-11
D909	C-11
D910	C-11
D911	E-11
D913	B-9
D914	E-10
D915	C-8
D916	D-9
D917	D-8
D919	B-8
D920	D-6
D921	D-4
D922	D-5
D923	D-7
D924	D-10
D925	D-11
D926	D-10
D927	E-11
D928	B-11
D930	B-10
D931	A-7
D932	B-6

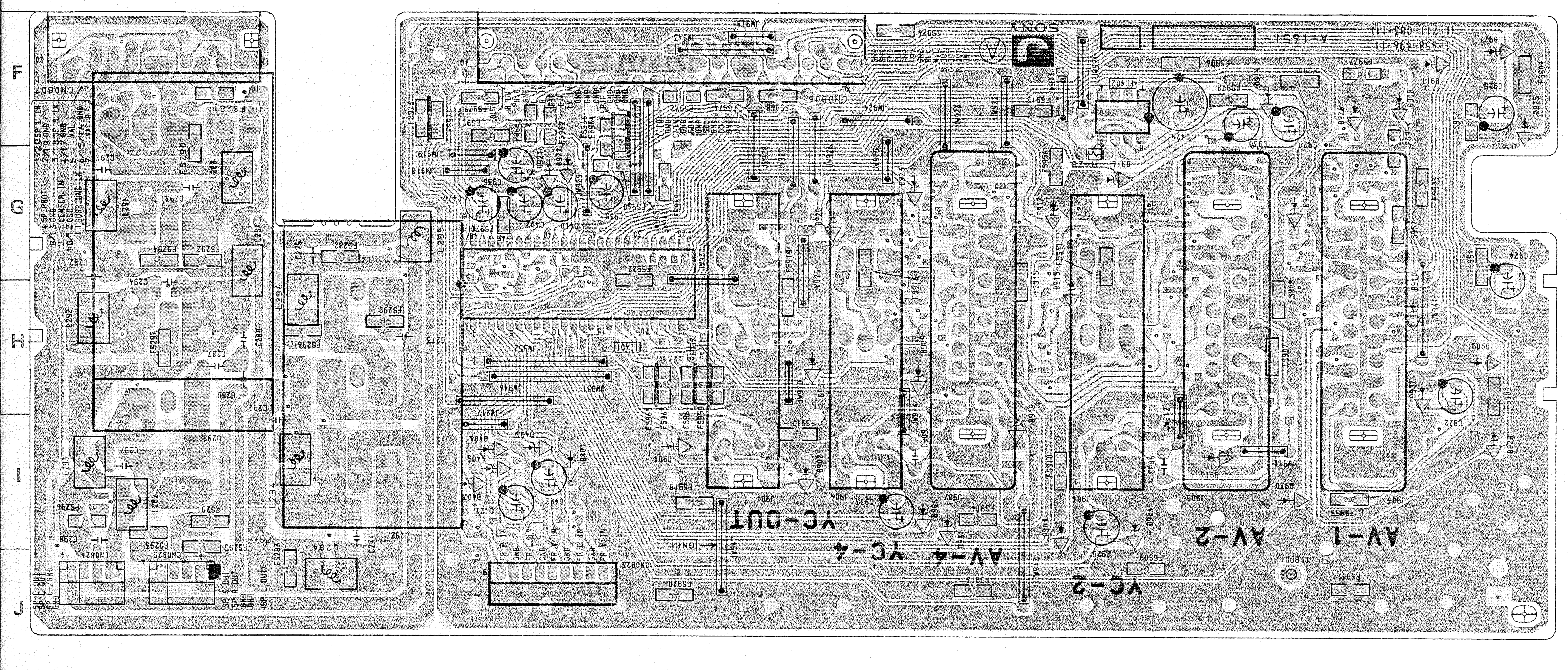
J VIDEO/AUDIO IN/OUT, SPEAKER TERMINAL

— J Board — <Conductor Side>

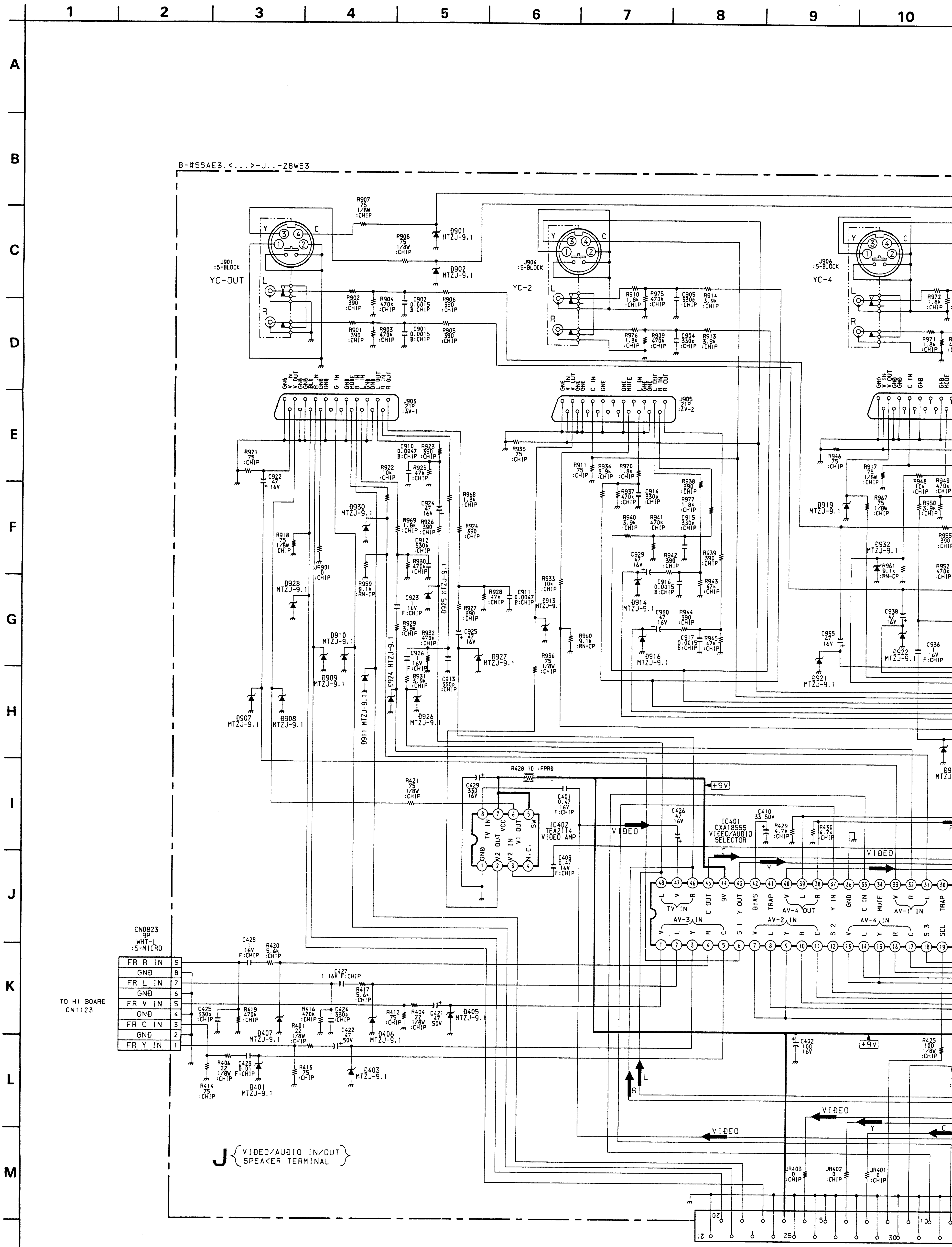


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
YC-OUT
YC-4
AV-4
YC-2
AV-2
AV-1
W
C
S
L
S
R
IC401
IC402
IC403
CN0824
CN0825
CN0807
CN0806
CN0823
CLP901
SONY
1-658-496-11
(1-711-083-11)

— J Board — <Component Side>



F
G
H
I
J
YC-OUT
YC-4
AV-4
YC-2
AV-2
AV-1
SONY
CN0807
CN0824
CN0825
CN0823


1
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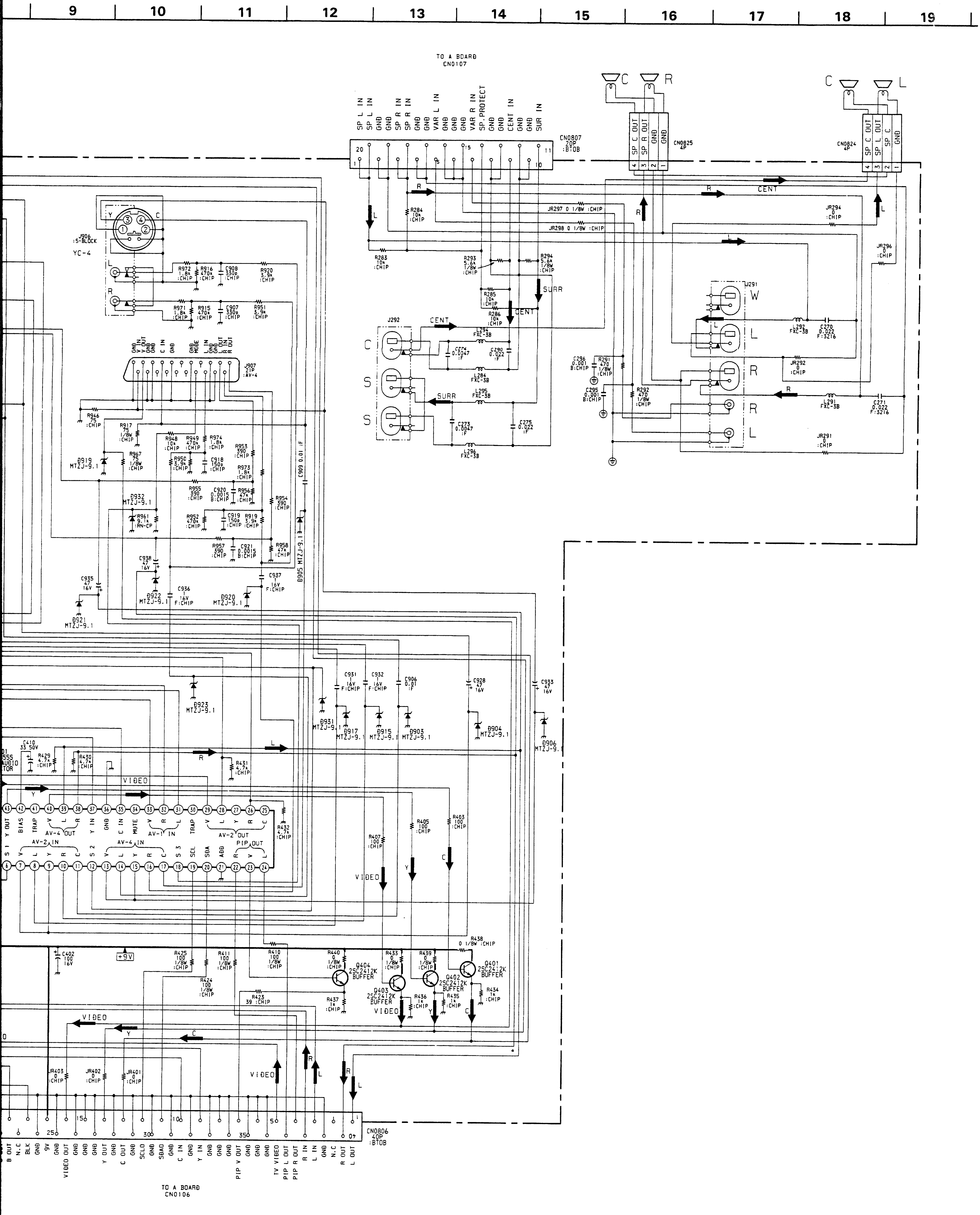
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
L
M
N
B-#SSAE3.<...>-J..-28WS3
J901 :S-BLOCK
YC-OUT
J904 :S-BLOCK
YC-2
J906 :S-BLOCK
YC-4
J903 21P :AV-1
J905 21P :AV-2
R907 75 1/8W :CHIP
R908 75 1/8W :CHIP
D901 MTZJ-9.1
D902 MTZJ-9.1
R902 390 :CHIP
R904 470k :CHIP
C902 0.0015 B:CHIP
R906 390 :CHIP
R901 390 :CHIP
R903 470k :CHIP
C901 0.0015 B:CHIP
R905 390 :CHIP
R910 1.8k :CHIP
R975 470k :CHIP
C905 330p :CHIP
R914 3.9k :CHIP
R976 1.8k :CHIP
R909 470k :CHIP
C904 330p :CHIP
R913 3.9k :CHIP
R921 75 :CHIP
C922 47 16V
C910 0.0047 B:CHIP
R923 390 :CHIP
R922 10k :CHIP
R925 47k :CHIP
C924 47 16V
R968 1.8k :CHIP
D930 MTZJ-9.1
R969 1.8k :CHIP
R926 390 :CHIP
C912 330p :CHIP
R924 390 :CHIP
R918 75 1/8W :CHIP
JR901 0 :CHIP
R959 9.1k :RN-CP
R930 470k :CHIP
D928 MTZJ-9.1
C923 1 16V F:CHIP
D925 MTZJ-9.1
R928 47k :CHIP
C911 0.0047 B:CHIP
R927 390 :CHIP
R929 3.9k :CHIP
R932 470k :CHIP
C925 47 16V
D910 MTZJ-9.1
C926 1 16V F:CHIP
D927 MTZJ-9.1
D909 MTZJ-9.1
R931 3.9k :CHIP
C913 330p :CHIP
D924 MTZJ-9.1
D911 MTZJ-9.1
D926 MTZJ-9.1
D907 MTZJ-9.1
D908 MTZJ-9.1
R935 75 :CHIP
R911 75 :CHIP
R934 3.9k :CHIP
R970 1.8k :CHIP
R938 390 :CHIP
R937 470k :CHIP
C914 330p :CHIP
R977 1.8k :CHIP
R940 3.9k :CHIP
R941 470k :CHIP
C915 330p :CHIP
C929 47 16V
R942 390 :CHIP
R939 390 :CHIP
R933 10k :CHIP
C916 0.0015 B:CHIP
R943 47k :CHIP
D913 MTZJ-9.1
D914 MTZJ-9.1
C930 47 16V
R944 390 :CHIP
R960 9.1k :RN-CP
C917 0.0015 B:CHIP
R945 47k :CHIP
R936 75 1/8W :CHIP
D916 MTZJ-9.1
R946 75 :CHIP
R917 75 1/8W :CHIP
R948 10k :CHIP
R949 470k
D919 MTZJ-9.1
R967 75 1/8W :CHIP
R950 3.9k :CHIP
R955 390 :CHIP
D932 MTZJ-9.1
R961 9.1k :RN-CP
R952 470k :CHIP
C938 47 16V
C935 47 16V
D922 MTZJ-9.1
C936 1 16V F:CHIP
D921 MTZJ-9.1
R972 1.8k :CHIP
R971 1.8k :CHIP
R428 10 :FPRD
C429 330 16V
C401 0.47 16V F:CHIP
R421 75 1/8W :CHIP
IC402 TEA2114 VIDEO AMP
TV IN
VCC
V1 OUT
SW
GND
V2 OUT
V2 IN
V1 IN
N.C.
C403 0.47 16V F:CHIP
+9V
VIDEO
C426 47 16V
IC401 CXA1855S VIDEO/AUDIO SELECTOR
C410 33 50V
R429 4.7k :CHIP
R430 4.7k :CHIP
C
Y
VIDEO
TV IN
C OUT
Y OUT
9V
BIAS
TRAP
AV-4 OUT
Y IN
GND
C IN
MUTE
AV-1 IN
TRAP
AV-3 IN
AV-2 IN
AV-4 IN
S 1
S 2
S 3
SCL
CN0823 9P WHT-L :S-MICRO
FR R IN
GND
FR L IN
GND
FR V IN
GND
FR C IN
GND
FR Y IN
TO HI BOARD CN1123
C428 1 16V F:CHIP
R420 5.6k :CHIP
C427 1 16V F:CHIP
R417 5.6k :CHIP
C425 330p :CHIP
R419 470k :CHIP
R416 470k :CHIP
C424 330p :CHIP
R412 75 :CHIP
R404 22 1/8W :CHIP
C421 47 50V
D405 MTZJ-9.1
D407 MTZJ-9.1
R401 22 1/8W :CHIP
C422 47 50V
D406 MTZJ-9.1
R406 22 1/8W :CHIP
C423 0.01 F:CHIP
R413 75 :CHIP
D403 MTZJ-9.1
R414 75 :CHIP
D401 MTZJ-9.1
C402 100 16V
+9V
R425 100 1/8W :CHIP
L
R
VIDEO
VIDEO
Y
C
JR403 0 :CHIP
JR402 0 :CHIP
JR401 0 :CHIP
J { VIDEO/AUDIO IN/OUT SPEAKER TERMINAL }
GND
R OUT
G OUT
B OUT
N.C
BLK
GND
9V
GND
VIDEO OUT
GND
GND
GND
Y OUT
GND
C OUT
GND
SCLO
GND
SDAO
GND
C IN
GND
Y IN
TO A BOARD CN0106


9
10
11
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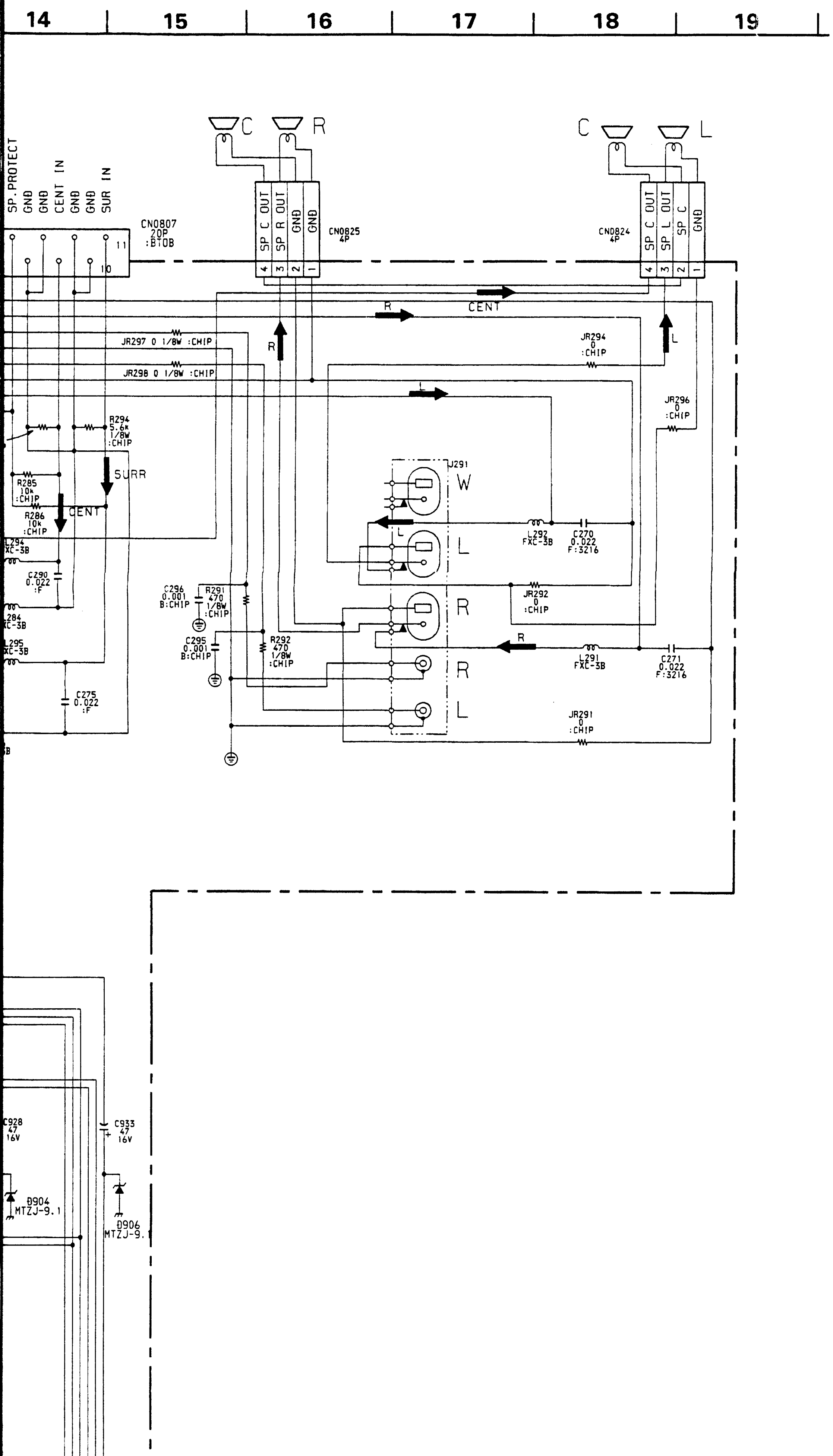
13
14
15
16
17
18
19
TO A BOARD
CN0107
SP L IN
SP L IN
GND
GND
SP R IN
SP R IN
GND
GND
VAR L IN
GND
GND
GND
VAR R IN
SP.PROTECT
GND
GND
CENT IN
GND
GND
SUR IN
CN0807
20P
:BTOB
SP C OUT
SP R OUT
GND
GND
CN0825
4P
CN0824
4P
SP C OUT
SP L OUT
SP C
GND
C
R
L
CENT
SURR
W
S
J906
:S-BLOCK
YC-4
J907
21P
:AV-4
J292
J291
VIDEO
Y
VIDEO OUT
AV-4 OUT
AV-1 IN
AV-2 OUT
AV-2 IN
AV-4 IN
PIP OUT
+9V
Q404
2SC2412K
BUFFER
Q403
2SC2412K
BUFFER
Q402
2SC2412K
BUFFER
Q401
2SC2412K
BUFFER
CN0806
40P
:BTOB
TO A BOARD
CN0106
B OUT
N.C
BLK
GND
9V
GND
VIDEO OUT
GND
GND
GND
Y OUT
GND
C OUT
GND
SCLO
GND
SDAO
GND
C IN
GND
Y IN
GND
GND
GND
PIP V OUT
GND
GND
GND
TV VIDEO
PIP L OUT
PIP R OUT
R IN
L IN
GND
N.C
R OUT
L OUT

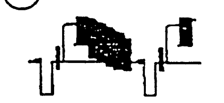

14
15
16
17
18
19
C
R
C
L
SP.PROTECT
GND
GND
CENT IN
GND
GND
SUR IN
CN0807
20P
:BTOB
11
10
SP C OUT
SP R OUT
GND
GND
CN0825
4P
4
3
2
1
CN0824
4P
SP C OUT
SP L OUT
SP C
GND
CENT
R
R
L
L
JR297 0 1/8W :CHIP
JR298 0 1/8W :CHIP
JR294
0
:CHIP
JR296
0
:CHIP
R294
5.6k
1/8W
:CHIP
SURR
CENT
R285
10k
:CHIP
R286
10k
:CHIP
L294
XC-3B
C290
0.022
:F
L284
XC-3B
L295
XC-3B
C275
0.022
:F
J291
W
L
R
R
L
L292
FXC-3B
C270
0.022
F:3216
C296
0.001
B:CHIP
R291
470
1/8W
:CHIP
JR292
0
:CHIP
C295
0.001
B:CHIP
R292
470
1/8W
:CHIP
L291
FXC-3B
C271
0.022
F:3216
JR291
0
:CHIP
C928
47
16V
C933
47
16V
D904
MTZJ-9.1
D906
MTZJ-9.1
R438
8W :CHIP
Q401
2SC2412K
BUFFER
R434
1k
:CHIP

Ref.No.	Pin No.	Voltage (V)
IC401	1-5	4.5
	7-11	4.5
	13-17	4.5
	19-20	4.0
	22-33	4.5
	35	5.5
	37	5.5
	38-39	4.5
	40-41	4.4
	42	4.5
	43	5.4
	44	9.0
	45	5.5
	46	4.7
	47-48	4.5
IC402	2	1.8
	3	2.5
	5	8.8
	6	1.7
	7	8.8
	8	2.2

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q401	5.7	9.0	-0.3
Q402	5.5	9.0	5.0
Q403/404	4.4	9.0	3.9

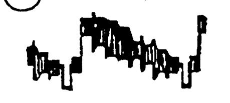
WAVEFORMS B1 BOARD

① PAL



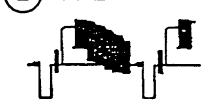
1.7 Vp-p (H)

① SECAM



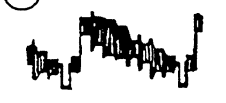
2.0 Vp-p (H)

② PAL



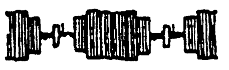
0.6 Vp-p (H)

② SECAM



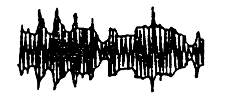
0.6 Vp-p (H)

③ PAL



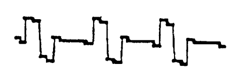
0.5 Vp-p (H)

③ SECAM



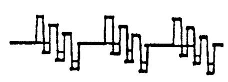
0.6 Vp-p (H)

④ SECAM



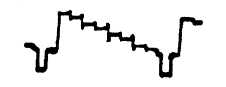
1.0 Vp-p (H)

⑤ SECAM



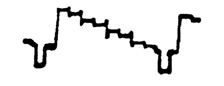
1.5 Vp-p (H)

⑥ PAL



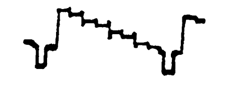
0.8 Vp-p (H)

⑥ SECAM



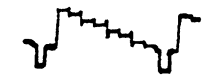
1.0 Vp-p (H)

⑦



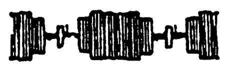
0.8 Vp-p (H)

⑧



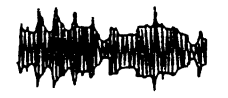
0.8 Vp-p (H)

⑨ PAL·



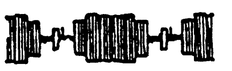
0.5 Vp-p (H)

⑨ SECAM



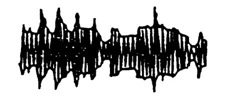
0.5 Vp-p (H)

⑩ PAL



0.5 Vp-p (H)

⑩ SECAM



0.5 Vp-p (H)

B1 BOARD (1/3) * MARK

Model / Ref. No.	28WS3A	28WS3B	28WS3D	28WS3E	28WS3K	28WS3U
C512	0.022MF	–	0.022MF	0.022MF	0.022MF	0.022MF
C535	0.1MF	0.022MF	0.1MF	0.1MF	0.1MF	0.1MF
C1320	0.1MF	0.022MF	0.1MF	0.1MF	0.1MF	0.1MF
Q506	2SA1037K	–	2SA1037K	2SA1037K	2SA1037K	2SA1037K
R514	1K	–	1K	1K	1K	1K
R515	56K	–	56K	56K	56K	56K
R528	100	–	100	100	100	100
R532	–	0	–	–	–	–
R538	–	10K	–	–	–	–
R539	–	10K	–	–	–	–
R540	–	10K	–	–	–	–
R560	1M	–	1M	1M	1M	1M
R571	47	–	47	47	47	47
R577	–	0	–	–	–	–
R578	0	–	0	0	0	0

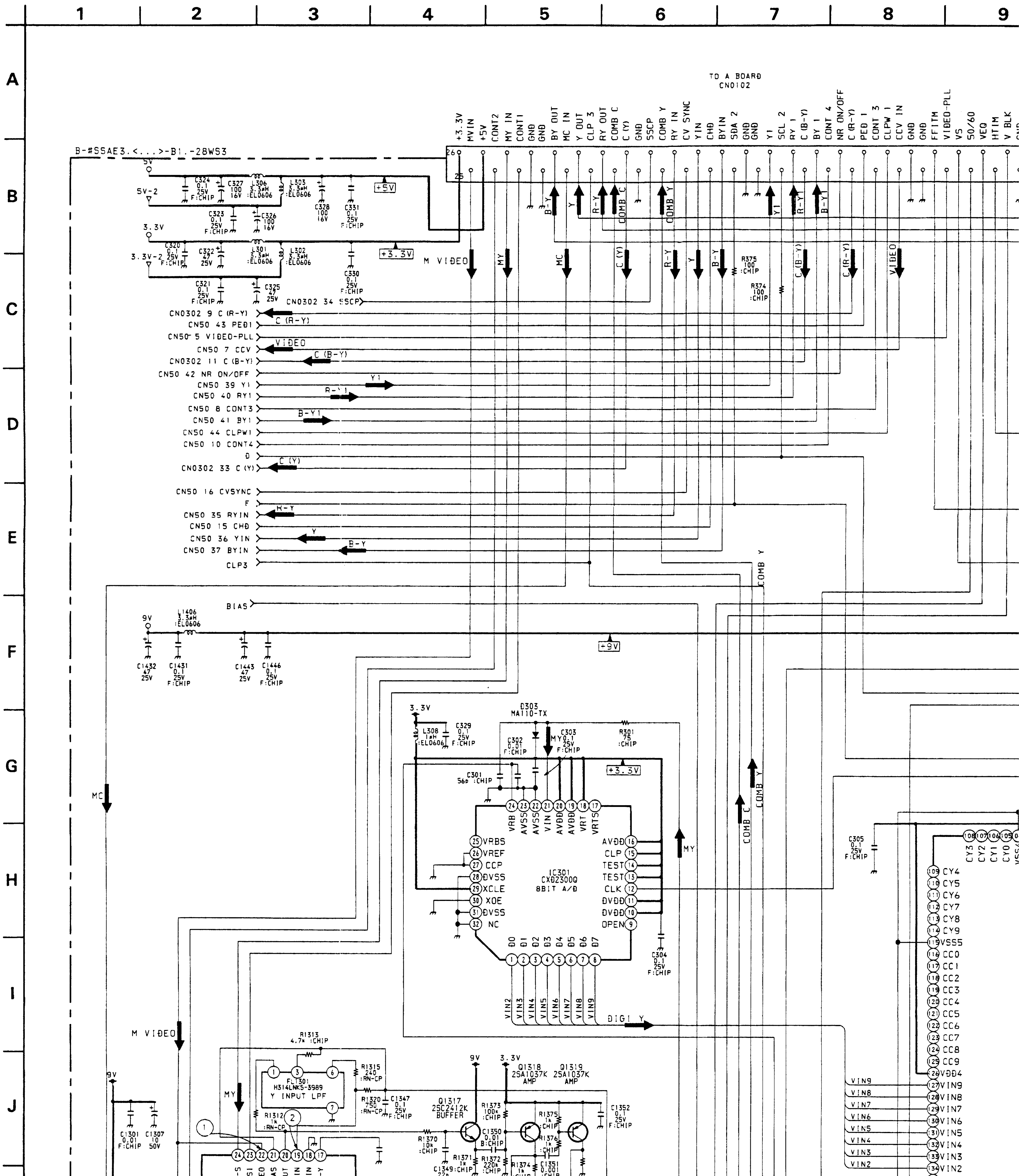
Ref.No.	Pin No.	Voltage (V)
IC301	10-11	3.2
	12	1.1
	13-16	3.2
	18-20	3.2
	21	2.3
	24	1.7
	29	3.2
IC302	1	3.0
	3	0.4
	4	3.2
	6	1.4
	7-8	1.0
	9	0.4
	12	3.2
	13	0.5
	21	2.4
	22-23	3.2
	24	0.1
	25	2.2
	27	0.1
	28-29	4.2
	30	3.0
	31-35	1.2
	39	4.8
	40	2.6
	43	4.8
	45	3.1
	46	3.1
	47-48	1.6
	49	1.2
	51	1.2
	53	3.2
	60	3.1
	93	3.1
IC502	3	3.1
	5	1.0
	6	1.6
	7-9	1.0
	11	1.5
	12	3.2
	13	1.5
	15	1.8
	16	1.8
	17	1.2
	19-20	1.6
	21	3.2
	23-25	1.6
	26	1.7
	27	3.1
	28	0.3
	29	1.1
	30	1.6
	31	1.2
	32-33	1.5
	34-35	1.3
	53	3.1
	63	3.1
	65-66	3.1
	67	4.2
	68	3.1
	69	4.1
	70	3.1
	72	3.1
	73	1.6
	75	0.1
	76-77	3.1
	89	3.1
IC503	31-33	1.2
	35	1.2
	37	1.9
	40	2.0
	41-42	5.0
	43-44	3.0
	46	3.0
	48	3.0
	50	0.6
	52-53	4.8
	54	0.6
	56	4.8
	58	0.6
	60-61	4.8
	62	1.4
IC1505	2	1.2
	4	1.2
	6	1.2
	14	1.5
	16	1.5
	18	1.5
	20	4.8
IC1506	2	1.0
	4	1.0
	6	1.0
	8	1.0
	12	1.3
	14	1.4
	16	1.4
	18	1.4
	20	4.8
IC1301	1	4.4
	5	8.0
	9	3.2
	10	4.2
	11-12	2.9
	19	0.5
	20	7.0
IC1302	4	2.8
	5-6	4.2
	7	2.2
	8	0.1
	9	0.2
	10	2.4
	11	3.0
	12-13	2.8
	15	2.3
	16	0.1
	17	3.0
	19-21	2.8
	22	3.6
	24	3.6
	26	3.6
	27	8.8
	30	4.2
	31-32	4.0

All Voltages are indicated in Volts DC

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q301	0.4	0	1.1
Q302	1.0	0	1.6
Q303	1.0	0	1.6
Q304	0.5	0	1.2
Q305	1.0	0	1.7
Q306	2.1	6.1	1.4
Q307	6.2	8.8	5.6
Q308	6.2	8.8	5.6
Q309	2.1	6.2	1.5
Q501/502/503	0.6	0	1.3
Q504	1.9	0	1.9
Q507	1.2	0	1.9
Q508	1.3	0	1.9
Q509	1.2	0	1.9
Q1301	3.4	8.8	2.8
Q1302	3.4	3.4	2.9
Q1303	0	7.5	0
Q1304	7.5	8.8	6.9
Q1307	0	8.7	0.8
Q1316	0.6	0.3	0
Q1318	3.2	0.2	3.2
Q1319	3.2	0.1	3.2

E	28WS3K	28WS3U
	0.022MF	0.022MF
	0.1MF	0.1MF
	0.1MF	0.1MF
K	2SA1037K	2SA1037K
	1K	1K
	56K	56K
	100	100
	-	-
	-	-
	-	-
	-	-
	1M	1M
	47	47
	-	-
	0	0

Pin No. .No.	(B) Base	(C) Collector	(E) Emitter
01	0.4	0	1.1
02	1.0	0	1.6
03	1.0	0	1.6
04	0.5	0	1.2
05	1.0	0	1.7
06	2.1	6.1	1.4
07	6.2	8.8	5.6
08	6.2	8.8	5.6
09	2.1	6.2	1.5
01/502/503	0.6	0	1.3
04	1.9	0	1.9
07	1.2	0	1.9
08	1.3	0	1.9
09	1.2	0	1.9
301	3.4	8.8	2.8
302	3.4	3.4	2.9
303	0	7.5	0
304	7.5	8.8	6.9
307	0	8.7	0.8
316	0.6	0.3	0
318	3.2	0.2	3.2
319	3.2	0.1	3.2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A
B
C
D
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H
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J
K
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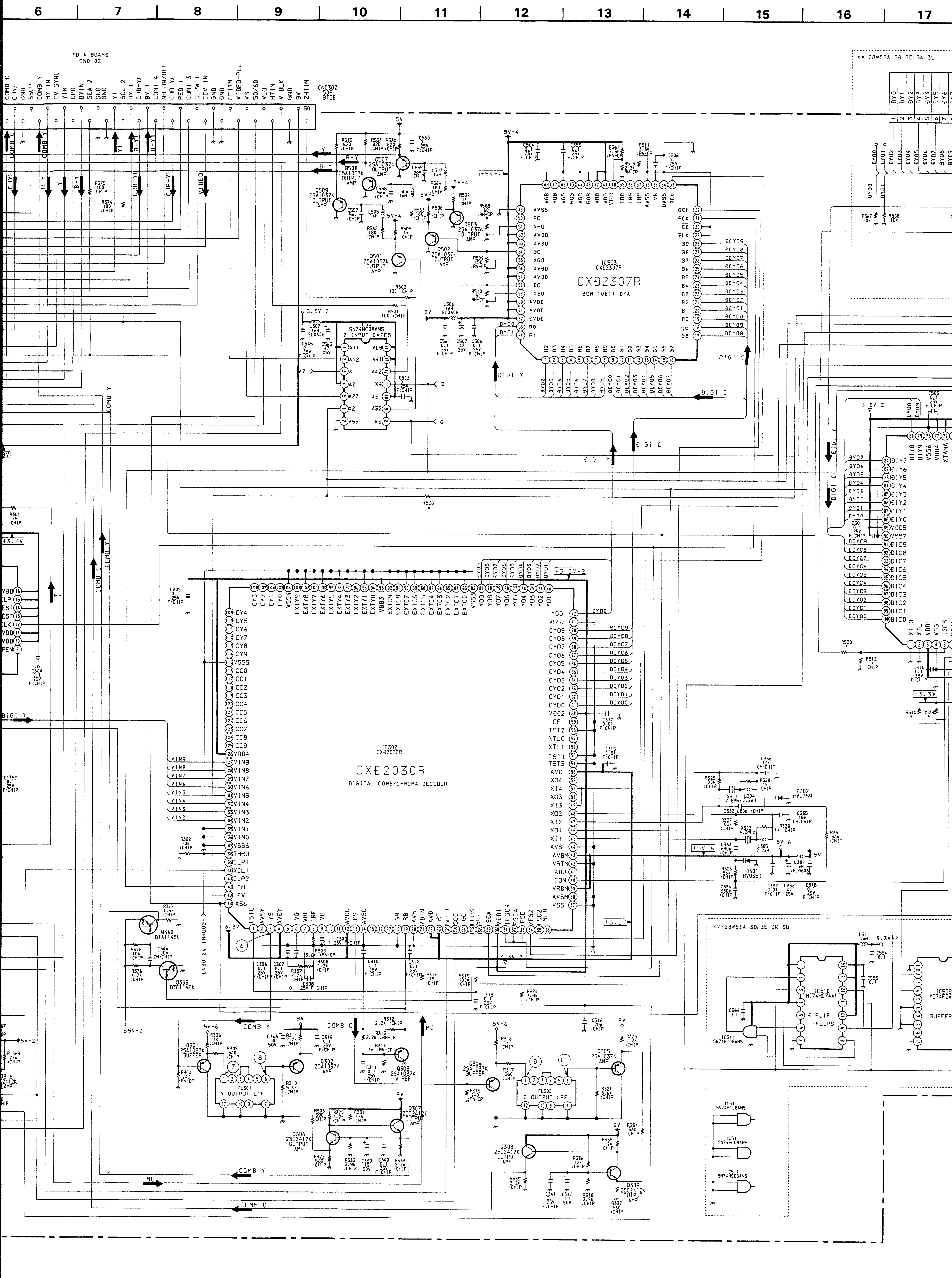
N
O
TO A BOARD
CN0102
+3.3V
MVIN
+5V
CONT2
MY IN
CONT1
GND
BY OUT
MC IN
Y OUT
CLP 3
RY OUT
COMB C
C (Y)
SSCP
COMB Y
RY IN
CV SYNC
YIN
CHD
BYIN
SDA 2
Y1
SCL 2
RY 1
C (B-Y)
BY 1
CONT 4
NR ON/OFF
C (R-Y)
PED 1
CONT 3
CLPW 1
CCV IN
FFITM
VIDEO-PLL
VS
50/60
VEQ
HTIM
V BLK
B-#SSAE3.<...>-B1.-28WS3
5V
5V-2
3.3V
3.3V-2
+5V
+3.3V
M VIDEO
CN0302 34 SSCP
CN0302 9 C (R-Y)
CN50 43 PED1
CN50 5 VIDEO-PLL
CN50 7 CCV
CN0302 11 C (B-Y)
CN50 42 NR ON/OFF
CN50 39 Y1
CN50 40 RY1
CN50 8 CONT3
CN50 41 BY1
CN50 44 CLPW1
CN50 10 CONT4
D
CN0302 33 C (Y)
CN50 16 CVSYNC
F
CN50 35 RYIN
CN50 15 CHD
CN50 36 YIN
CN50 37 BYIN
CLP3
BIAS
9V
+9V
IC301
CXD2300Q
8BIT A/D
D303
MA110-TX
DIGI Y
IC1302
CXA1860Q
SW & CLAMP
FL1301
H314LNKS-3989
Y INPUT LPF
FL1302
H314LNKS-3989
C INPUT LPF
Q1317
2SC2412K
BUFFER
Q1318
2SA1037K
AMP
Q1319
2SA1037K
AMP
Q1301
2SC2412K
BIAS-CONT
Q1302
2SC2412K
BIAS-CONT
IC1301
TDA8395T/NZ
SECAM DECODER
Q1304
2SC2412K BUFFER
Q1305
2SC2412K
BUFFER
Q1306
2SC2412K
SW
Q1303
2SC2412K
SW
Q1307
2SC2412K
FSC-AMP
IC1305
MC74HC04AF
Q1316
2SC2412K
CLAMP
Q360
DTA114EK
Q359
DTC114EK
Q301
2SA1037K
BUFFER
FL301
Y OUTPUT LPF
CN30 24 THROUGH
COMB Y
COMB C
MC
MY
B1 (1/3)
DIGITAL COMB,
DIGITAL NOISE REDUCER,
TWIN PICTURES


6
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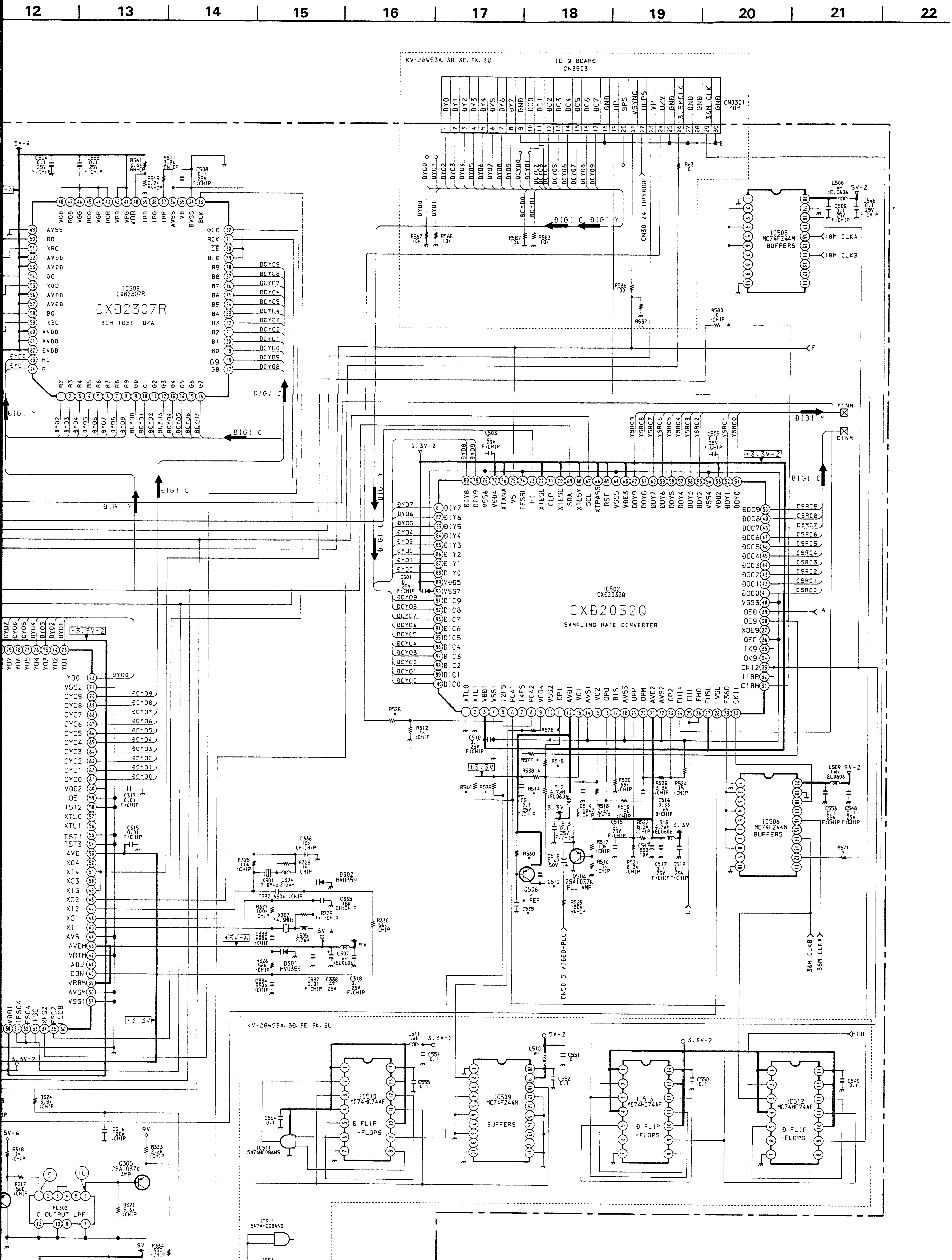
17
TO A BOARD CN0102
CN0302 50P :BTOB
KV-28WS3A, 3D, 3E, 3K, 3U
IC503 CXD2307R
CXD2307R
3CH 10BIT D/A
IC501 SN74HC08ANS 2-INPUT GATES
Q507 2SA1037K OUTPUT AMP
Q508 2SA1037K OUTPUT AMP
Q509 2SA1037K OUTPUT AMP
Q501 2SA1037K OUTPUT AMP
Q502 2SA1037K OUTPUT AMP
Q503 2SA1037K OUTPUT AMP
DIGI Y
DIGI C
IC302 CXD2030R
CXD2030R
DIGITAL COMB/CHROMA DECODER
COMB Y
COMB C
MC
MY
VIDEO
Q301 2SA1037K BUFFER
FL301 Y OUTPUT LPF
Q302 2SA1037K AMP
Q303 2SA1037K V REF
Q306 2SC2412K OUTPUT AMP
Q307 2SC2412K OUTPUT AMP
Q304 2SA1037K BUFFER
FL302 C OUTPUT LPF
Q305 2SA1037K AMP
Q308 2SC2412K OUTPUT AMP
Q309 2SC2412K OUTPUT AMP
Q360 DTA114EK
Q359 DTC114EK
X301 17.8MHz
X302 14.3MHz
D302 HVU359
D301 HVU359
IC510 MC74HC74AF
D FLIP -FLOPS
IC511 SN74HC08ANS
IC509 MC74F24
BUFFER
CN30 24 THROUGH



12
13
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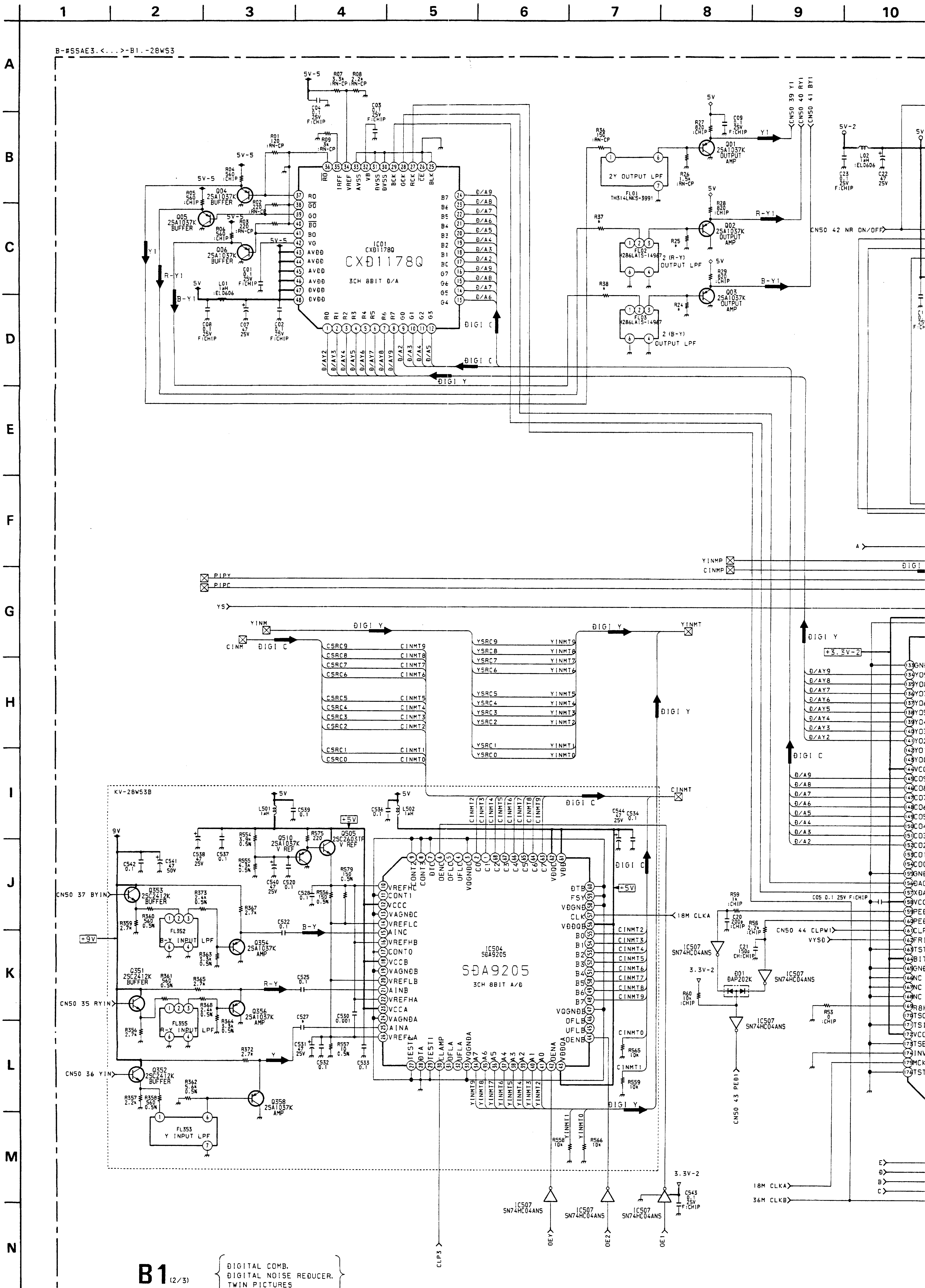
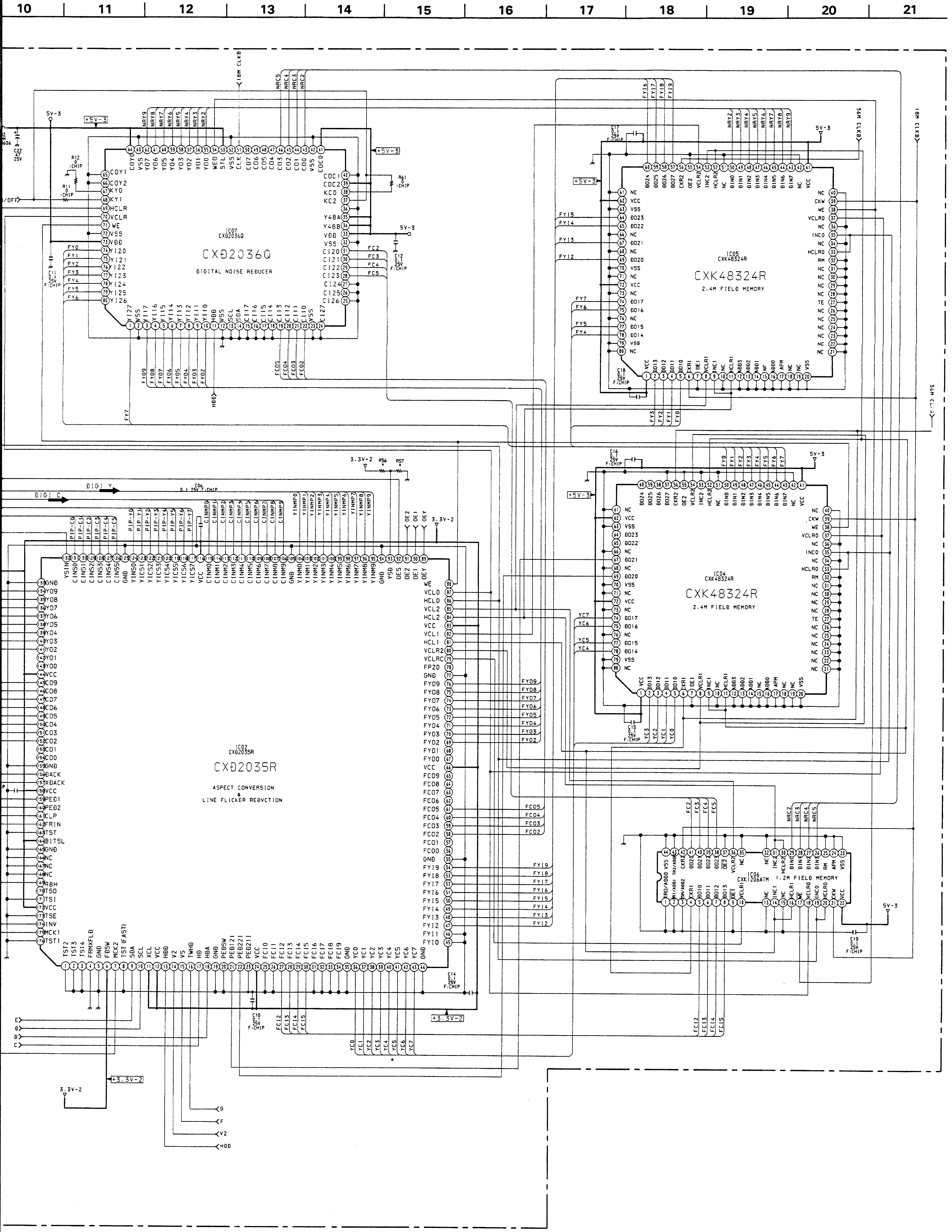
KV-28WS3A, 3D, 3E, 3K, 3U
TO Q BOARD
CN3503
CN0301
30P
IC503
CXD2307R
CXD2307R
3CH 10BIT D/A
IC502
CXD2032Q
CXD2032Q
SAMPLING RATE CONVERTER
IC505
MC74F244M
BUFFERS
18M CLKA
18M CLKB
IC506
MC74F244M
BUFFERS
36M CLKB
36M CLKA
DIGI Y
DIGI C
YINM
CINM
CN30 24 THROUGH
CN50 5 VIDEO-PLL
Q504
2SA1037K
PLL AMP
Q506
V REF
X301
17.8MHz
X302
14.3MHz
D302
HVU359
D301
HVU359
KV-28WS3A, 3D, 3E, 3K, 3U
IC510
MC74HC74AF
D FLIP-FLOPS
IC509
MC74F244M
BUFFERS
IC513
MC74HC74AF
D FLIP-FLOPS
IC512
MC74HC74AF
D FLIP-FLOPS
IC511
SN74HC08ANS
HDD
FL302
C OUTPUT LPF
Q305
2SA1037K
AMP
Q308
2SC2412K
OUTPUT AMP
Q309
2SC2412K
OUTPUT AMP


B-#SSAE3.<...>-B1.-28WS3
IC01 CXD1178Q CXD1178Q 3CH 8BIT D/A
Q04 2SA1037K BUFFER
Q05 2SA1037K BUFFER
Q06 2SA1037K BUFFER
Q01 2SA1037K OUTPUT AMP
Q02 2SA1037K OUTPUT AMP
Q03 2SA1037K OUTPUT AMP
FL01 TH314LNKS-3991 2Y OUTPUT LPF
FL02 H286LAIS-14987 2 (R-Y) OUTPUT LPF
FL03 H286LAIS-14987 2 (B-Y) OUTPUT LPF
CN50 39 Y1
CN50 40 RY1
CN50 41 BY1
CN50 42 NR ON/OFF
Y1
R-Y1
B-Y1
DIGI Y
DIGI C
PIPY
PIPC
YS
YINM
CINM
YINMT
CINMT
YINMP
CINMP
KV-28WS3B
IC504 SDA9205 SDA9205 3CH 8BIT A/D
Q353 2SC2412K BUFFER
Q351 2SC2412K BUFFER
Q352 2SC2412K BUFFER
Q354 2SA1037K AMP
Q356 2SA1037K AMP
Q358 2SA1037K AMP
Q510 2SA1037K V REF
Q505 2SC2603STP V REF
FL352 B-Y INPUT LPF
FL355 R-Y INPUT LPF
FL353 Y INPUT LPF
CN50 37 BYIN
CN50 35 RYIN
CN50 36 YIN
+9V
+5V
B-Y
R-Y
Y
18M CLKA
IC507 SN74HC04ANS
D01 DAP202K
CN50 44 CLPW1
VYSD
CN50 43 PED1
3.3V-2
+3.3V-2
OEY
OE2
OE1
CLP3
18M CLKA
36M CLKB

B1(2/3)

DIGITAL COMB.
DIGITAL NOISE REDUCER.
TWIN PICTURES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18M CLKB
36M CLKB
5V-3
+5V-3
3.3V-2
+3.3V-2
IC07
CXD2036Q
CXD2036Q
DIGITAL NOISE REDUCER
IC05
CXK48324R
CXK48324R
2.4M FIELD MEMORY
IC04
CXK48324R
CXK48324R
2.4M FIELD MEMORY
IC02
CXD2035R
CXD2035R
ASPECT CONVERSION
&
LINE FLICKER REDUCTION
IC06
CXK1206ATM
1.2M FIELD MEMORY
DIGI Y
DIGI C
C04
0.1 25V F:CHIP
C22
47
25V
R12
0
:CHIP
R11
0
:CHIP
R61
0
:CHIP
C11
0.1
25V
F:CHIP
C12
0.1
25V
F:CHIP
C17
0.1
25V
F:CHIP
C18
0.1
25V
F:CHIP
C16
0.1
25V
F:CHIP
C15
0.1
25V
F:CHIP
C19
0.1
25V
F:CHIP
C14
0.1
25V
F:CHIP
C10
0.1
25V
F:CHIP
R56
R57
HDD
E
D
B
C
G
F
V2
HDD
/OFF

Ref.No.	Pin No.	Voltage (V)
IC01	27	1.2
	28-29	1.5
	32	1.1
	34-35	1.9
	37	0.3
	39	1.1
	41	1.1
	42	3.0
	43-48	4.8
IC02	6	3.1
	7	1.3
	9-10	4.2
	11-12	3.0
	13	1.6
	15	0.1
	16	1.6
	17	1.7
	18	1.6
	21-22	0
	24	3.1
	66	3.1
	79-82	0
	83	3.0
	84-87	0
	88	0.7
	89-91	3.0
	92-93	0
	132	0
	144	3.1
	156	1.5
	157	3.1
	158-159	0
	160	0.1
	164	3.1
	172	3.1
	175	1.5
IC04	1	4.8
	6	1.2
	8-9	0
	11	0
	38	0.7
	39	1.3
	41	4.8
	56	1.5
	62	4.8
	72	4.8
IC05	1	4.8
	6	1.4
	38	1.0
	39	1.4
	41	4.8
	56	1.2
	62	4.8
	72	4.8
IC06	4	1.3
	10	0
	17	1.0
	21	1.2
	22	4.8
	42	1.3
IC07	11	1.6
	33-35	4.8
	39	4.8
	41	4.8
	51	1.4
	53	4.8
	54	1.0
	64	4.8
	71	0.7
	73	4.8

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q01	0.8	0	1.5
Q02/03	1.6	0	2.2
Q04	0.3	0	0.9
Q05/06	1.1	0	1.9

B1 BOARD (2/3) * MARK

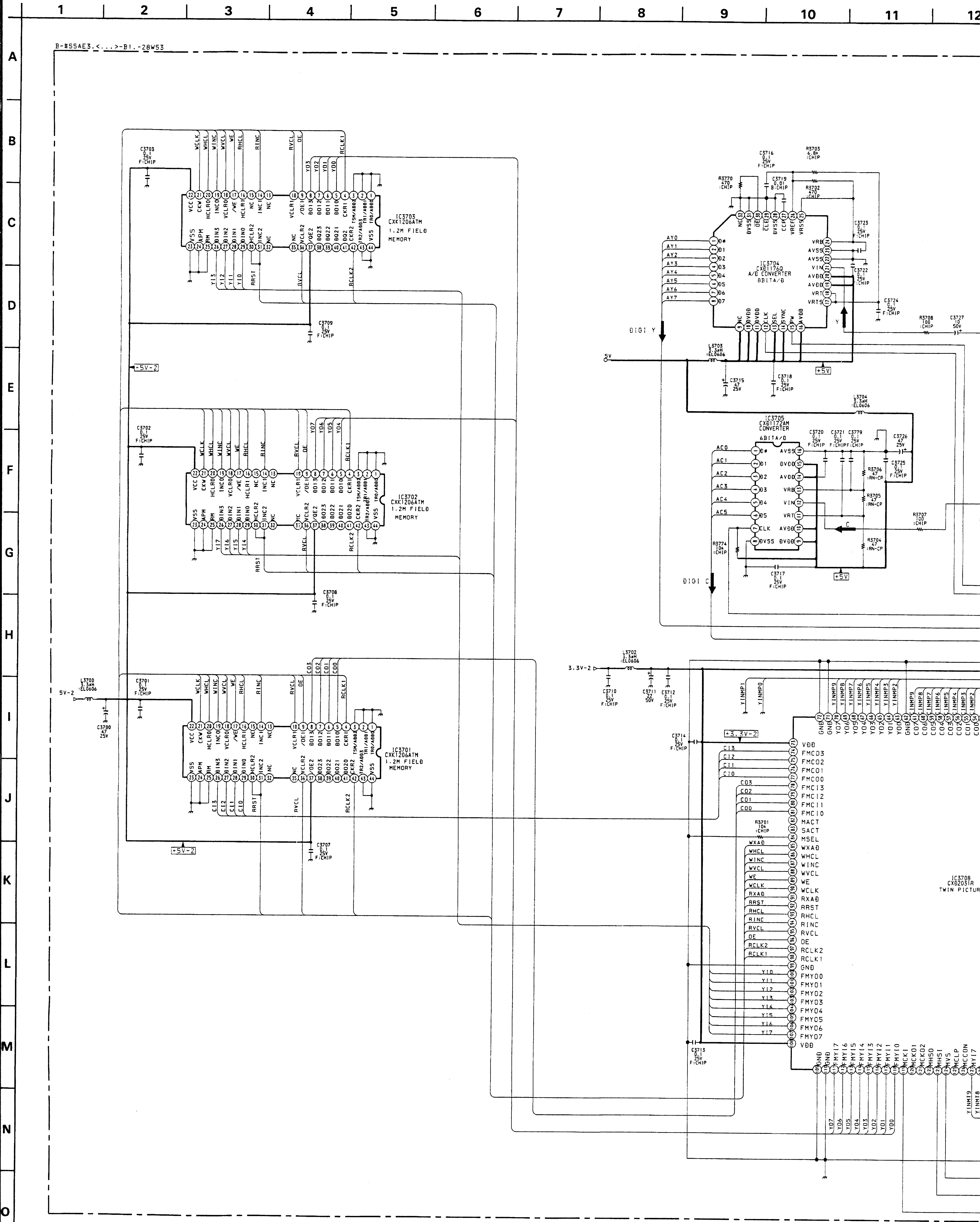
Model / Ref. No.	28WS3A	28WS3B	28WS3D	28WS3E	28WS3K	28WS3U
C527	–	0.222MF	–	–	–	–
R24	1.5K	1K	1.5K	1.5K	1.5K	1.5K
R25	1.5K	1K	1.5K	1.5K	1.5K	1.5K
R37	150	100	150	150	150	150
R38	150	100	150	150	150	150
R56	–	10K	–	–	–	–
R57	10K	–	10K	10K	10K	10K

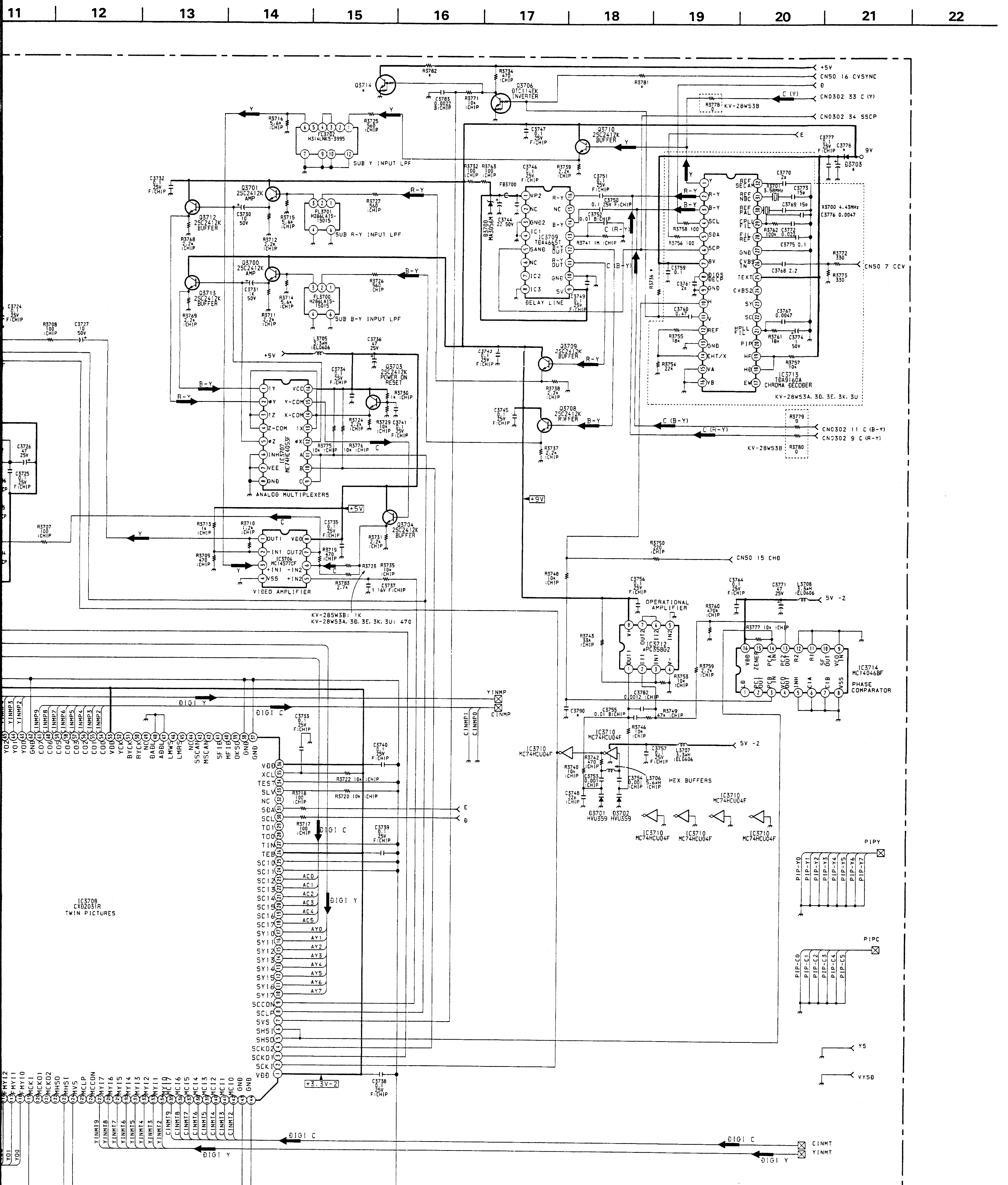
B1 BOARD (3/3) * MARK

Model / Ref. No.	28WS3A	28WS3B	28WS3D	28WS3E	28WS3K	28WS3U
C3778	47MF	–	47MF	47MF	47MF	47MF
C3790	100P	220P	100P	100P	100P	100P
D3703	RB411D	–	RB411D	RB411D	RB411D	RB411D
Q3714	DTC114EKA	–	DTC114EKA	DTC114EKA	DTC114EKA	DTC114EKA
R3736	47K	–	47K	47K	47K	47K
R3781	220	–	220	220	220	220
R3782	4.7K	–	4.7K	4.7K	4.7K	4.7K

Ref.No.	Pin No.	Voltage (V)
IC3704	9-11	4.8
	12	2.2
	13-14	4.8
	15	3.6
	16	4.8
	17-18	2.5
	19-20	4.8
	21	0.9
	24-26	0.5
	27	2.3
IC3705	7	1.5
	9-10	4.8
	11	3.1
	12	2.4
	13	1.7
	14-15	4.8
IC3706	1	2.0
	2-3	1.6
	5-7	2.4
	8	4.8
IC3707	1-2	3.1
	3-5	3.8
	9	3.6
	10	1.5
	11	3.6
	12	3.7
	13-14	3.8
	15	3.0
	16	4.8
IC3708	1	3.1
	2	2.2
	3-4	1.5
	5-6	2.0
	7	0.4
	8	3.6
	9	2.4
	26	3.1
	30	4.2
	31	4.2
	35-36	3.1
	53	3.1
	73	3.1
	108	3.1
	119	1.4
	123	1.6
	124	0.1
IC3709	1	5.7
	5	1.3
	9	5.7
	11-12	3.0
	14	1.4
	16	1.4
IC3712	1	4.2
	2-3	2.0
	8	8.8
IC3713	1	2.4
	2	2.1
	3	2.0
	4-5	4.2
	6	1.3
	7	8.5
	8	5.0
	10	4.6
	11-12	3.8
	14	2.0
	18-19	3.8
	21	3.9
	25	8.5
	26	3.6
	28	3.4
	29	4.7
	30	2.0
	31	1.5
IC3714	3	0.3
	13-14	2.1
	16	4.8

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q3700	0	8.8	1.6
Q3701	2.2	8.8	1.6
Q3703	4.4	4.8	3.8
Q3704	3.1	4.8	2.5
Q3706	2.0	0.4	0
Q3708	0	8.8	2.4
Q3709	3.0	8.8	2.4
Q3710	2.4	8.8	1.8
Q3712/3713	3.7	8.8	3.0


B-#S5AE3.<...>-B1.-28WS3
IC3703
CXK1206ATM
1.2M FIELD
MEMORY
IC3702
CXK1206ATM
1.2M FIELD
MEMORY
IC3701
CXK1206ATM
1.2M FIELD
MEMORY
IC3704
CXD1176Q
A/D CONVERTER
8BITA/D
IC3705
CXD1172AM
CONVERTER
6BITA/D
IC3708
CXD2031R
TWIN PICTUR
+5V-2
5V-2
5V
+5V
3.3V-2
+3.3V-2
DIGI Y
DIGI C
L3700
L3702
L3703
L3704
C3700
C3701
C3702
C3703
C3707
C3708
C3709
C3710
C3711
C3712
C3713
C3714
C3715
C3716
C3717
C3718
C3719
C3720
C3721
C3722
C3723
C3724
C3725
C3726
C3727
C3779
R3701
R3702
R3703
R3704
R3705
R3706
R3707
R3708
R3720
R3774


11
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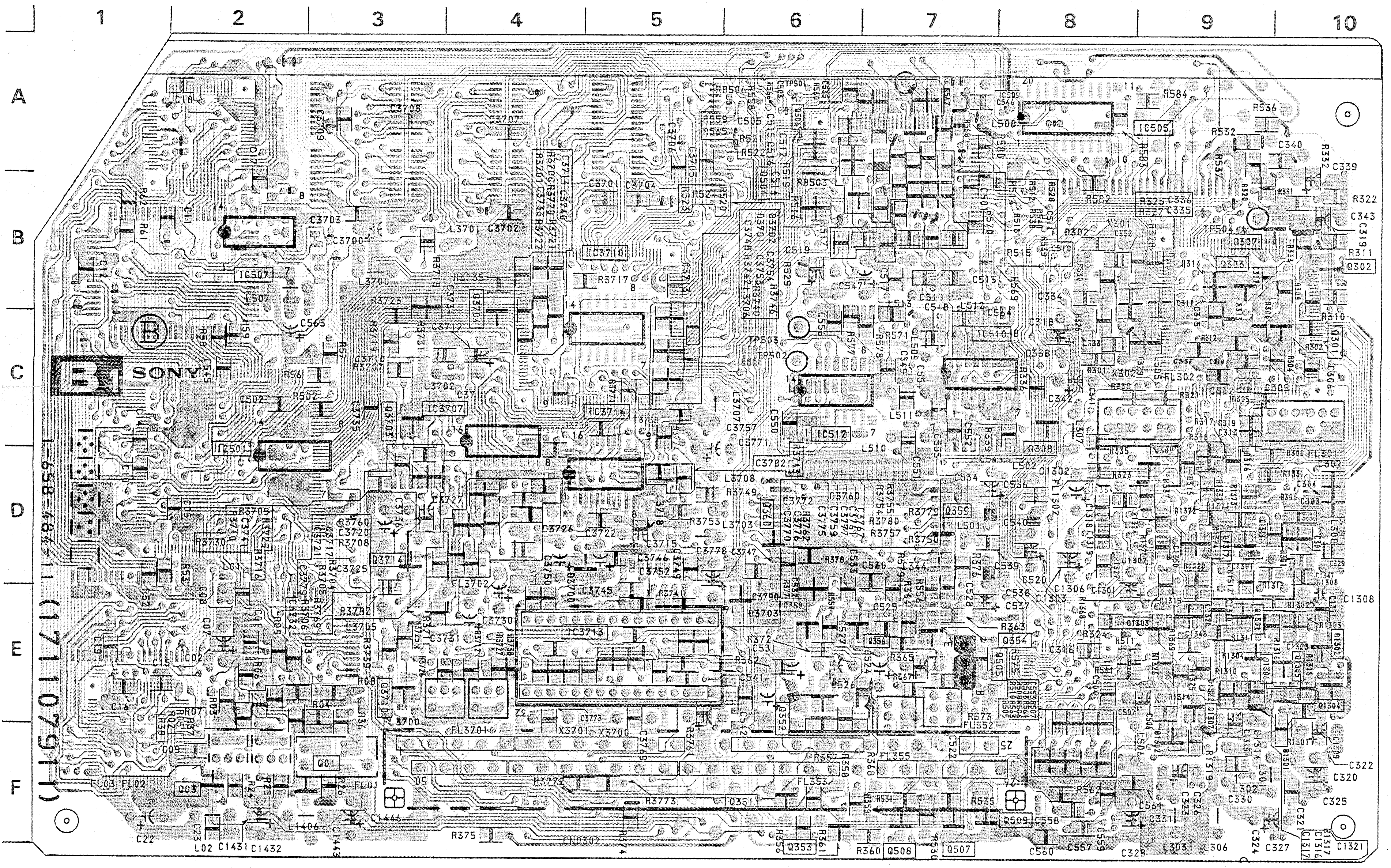
21
22
+5V
CN50 16 CVSYNC
CN0302 33 C (Y)
CN0302 34 SSCP
9V
CN50 7 CCV
CN0302 11 C (B-Y)
CN0302 9 C (R-Y)
KV-28WS3B
CN50 15 CHΘ
5V -2
Q3714
Q3706 DTC114EK INVERTER
Q3710 2SC2412K BUFFER
FL3702 H314LNKS-3995
SUB Y INPUT LPF
Q3701 2SC2412K AMP
Q3712 2SC2412K BUFFER
FL3701 H286LA15-15015
SUB R-Y INPUT LPF
Q3700 2SC2412K AMP
Q3713 2SC2412K BUFFER
FL3700 H286LA15-15015
SUB B-Y INPUT LPF
IC3709 TDA4665T
DELAY LINE
D3700 MA3056M
IC3713 TDA9160A CHROMA DECODER
KV-28WS3A, 3D, 3E, 3K, 3U
X3700 4.43MHz
X3701 3.58MHz
Q3709 2SC2412K BUFFER
Q3708 2SC2412K BUFFER
Q3703 2SC2412K POWER ON RESET
IC3707 MC74HC4053F
ANALOG MULTIPLEXERS
Q3704 2SC2412K BUFFER
IC3706 MC14577CF
VIDEO AMPLIFIER
KV-28SW3B: 1K
KV-28WS3A, 3D, 3E, 3K, 3U: 470
IC3712 μPC358G2
OPERATIONAL AMPLIFIER
IC3714 MC14046BF
PHASE COMPARATOR
IC3710 MC74HCU04F
HEX BUFFERS
D3701 HVU359
D3702 HVU359
IC3708 CXD2031R
TWIN PICTURES
ÐIGI Y
ÐIGI C
YINMP
CINMP
PIPY
PIPC
YS
VYSΘ
CINMT
YINMT
F
HΘΘ
18M CLKB
+3.3V-2
+9V

B1(3/3)

ÐIGITAL COMB.
ÐIGITAL NOISE REÐUCER.
TWINPICTURES

— B1 Board — <Conductor Side> (KV-28WS3A, 3D, 3E, 3K, 3U ONLY)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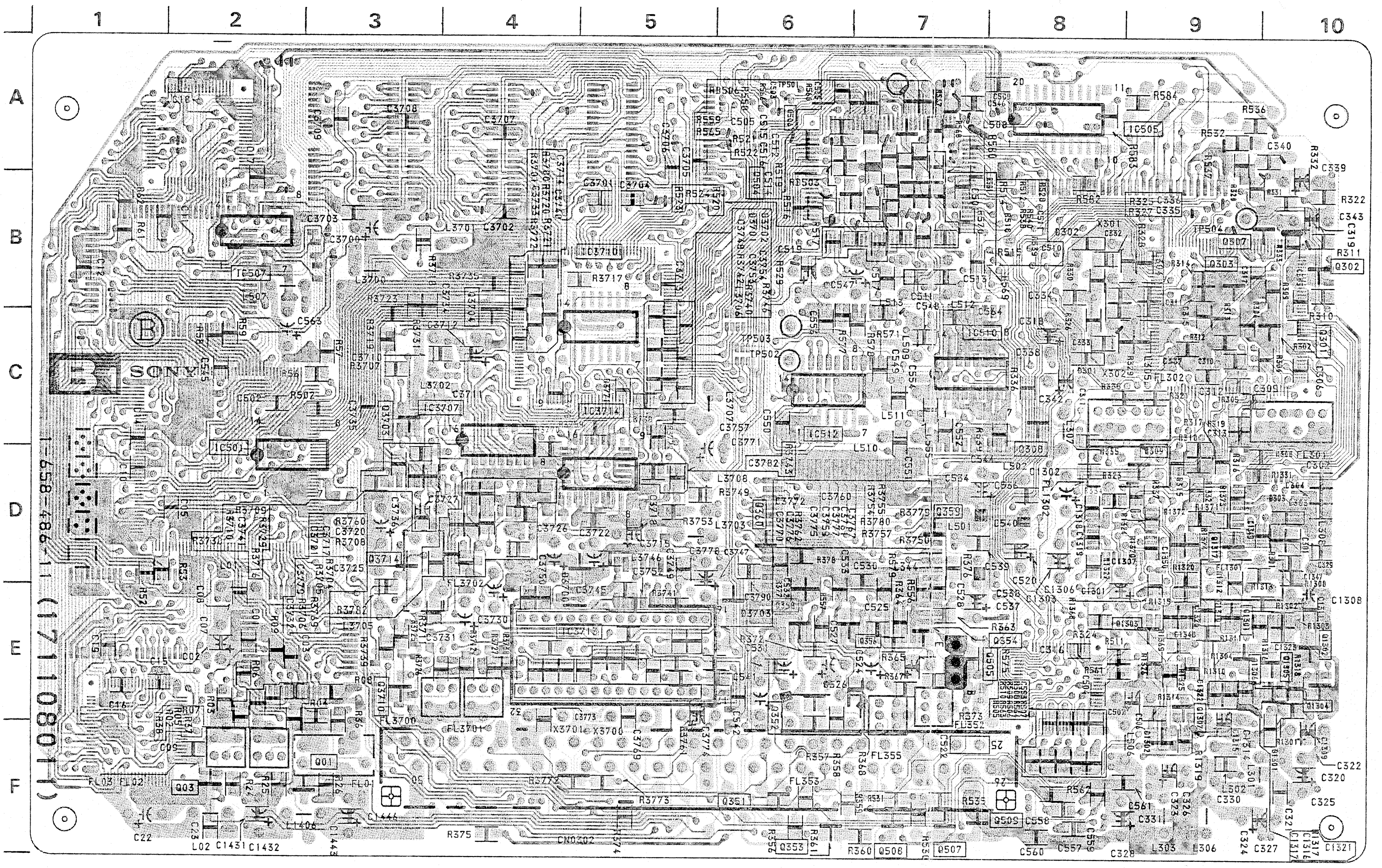
A
B
C
D
E
F
B1
SONY
B
1-658-486-11
(1711079 11)

— B1 Board — <Conductor Side> (KV-28WS3B ONLY)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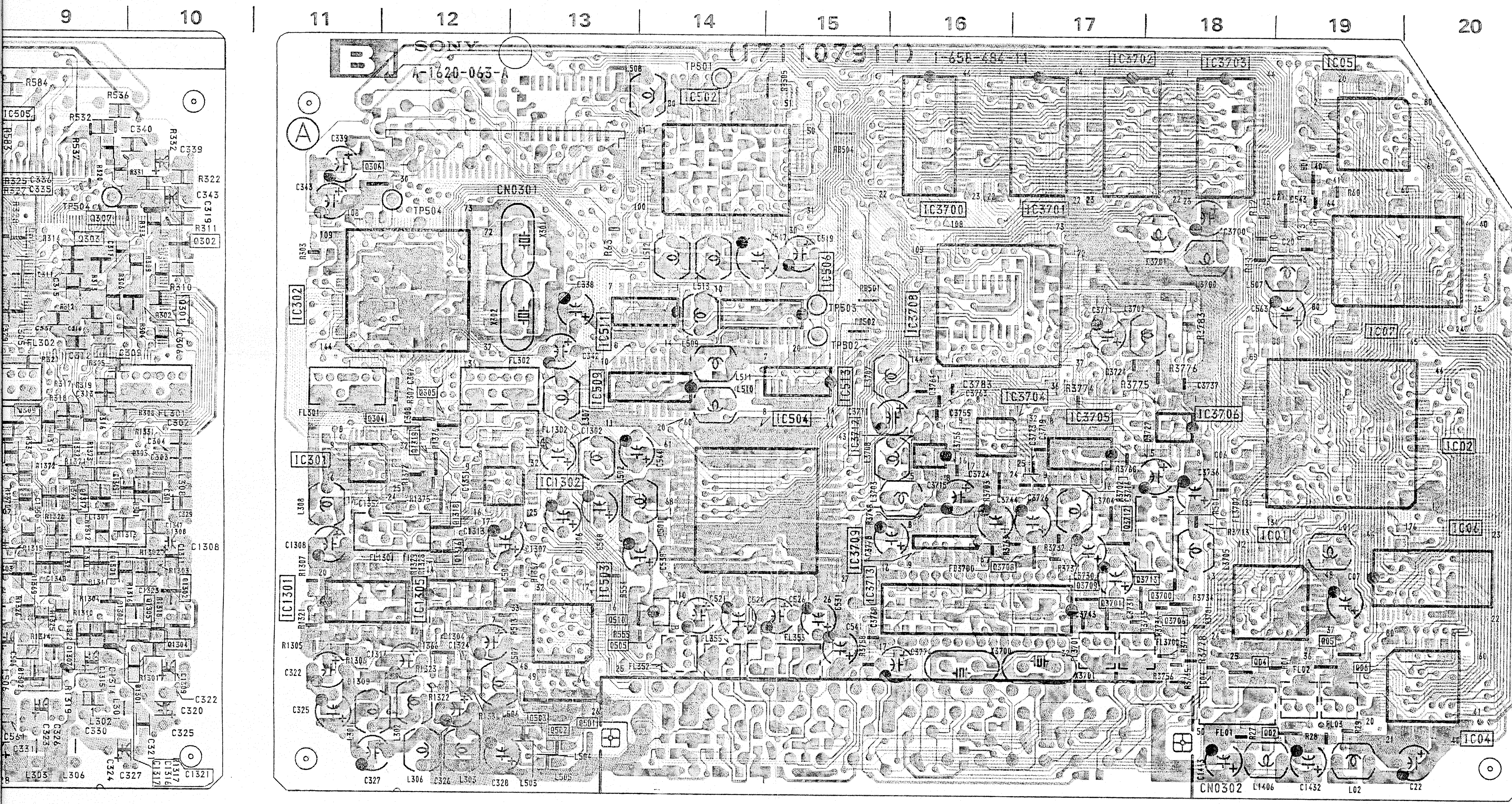
A
B
C
D
E
F
B1
SONY
B
1-658-486-11
(1711080 11)

— B1 Board — <Component Side> (KV-28WS3A, 3D, 3E, 3K, 3U ONLY)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19
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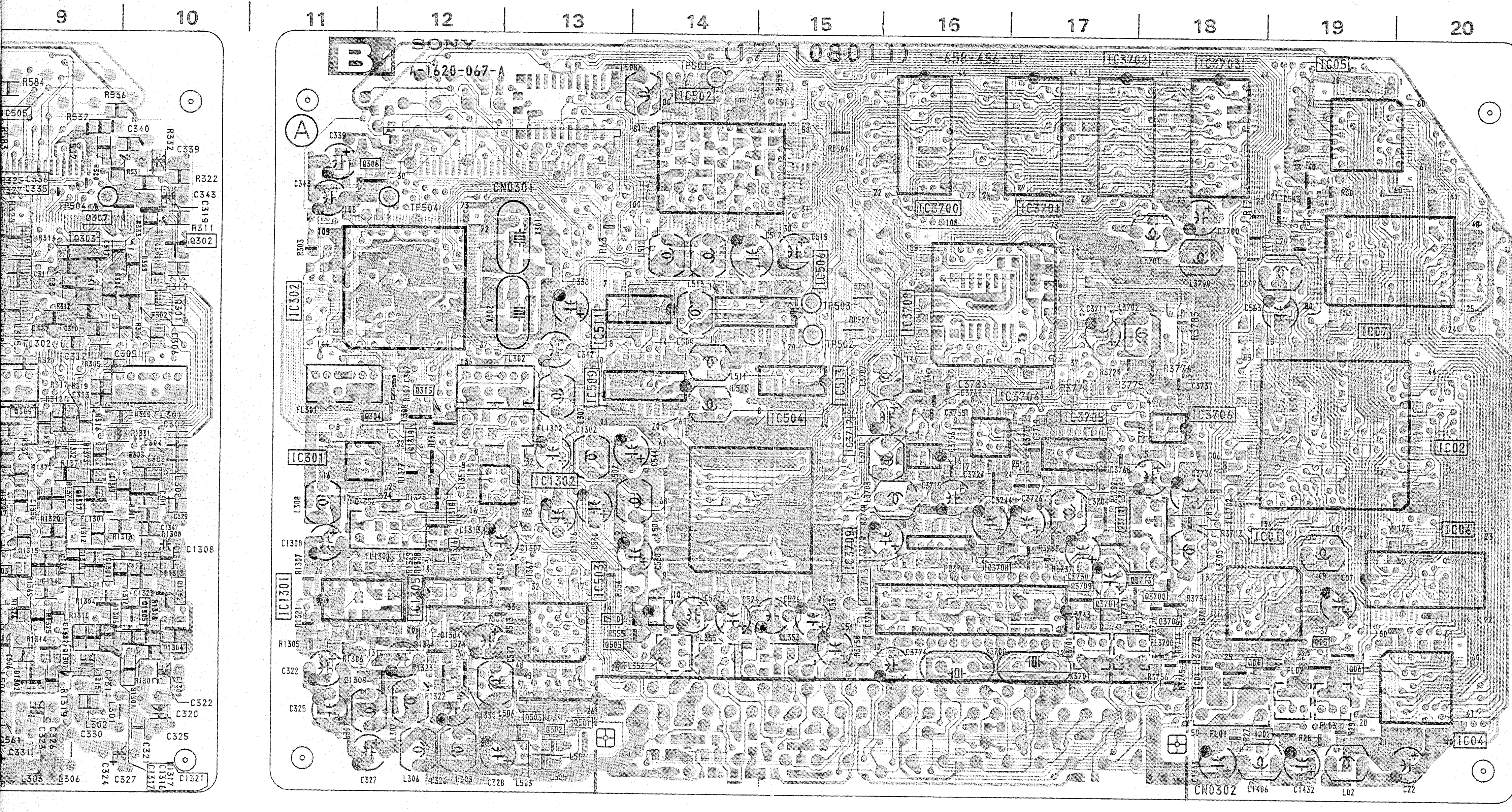
B1
SONY
A-1620-063-A
(1-711-079-11)
1-658-484-11
A
CN0301
CN0302
IC3700
IC3701
IC3702
IC3703
IC504
IC502
IC301
IC302
IC1301
IC1302
IC007
IC002
IC001
IC004
IC005
IC006

— B1 Board — <Component Side> (KV-28WS3B ONLY)


9
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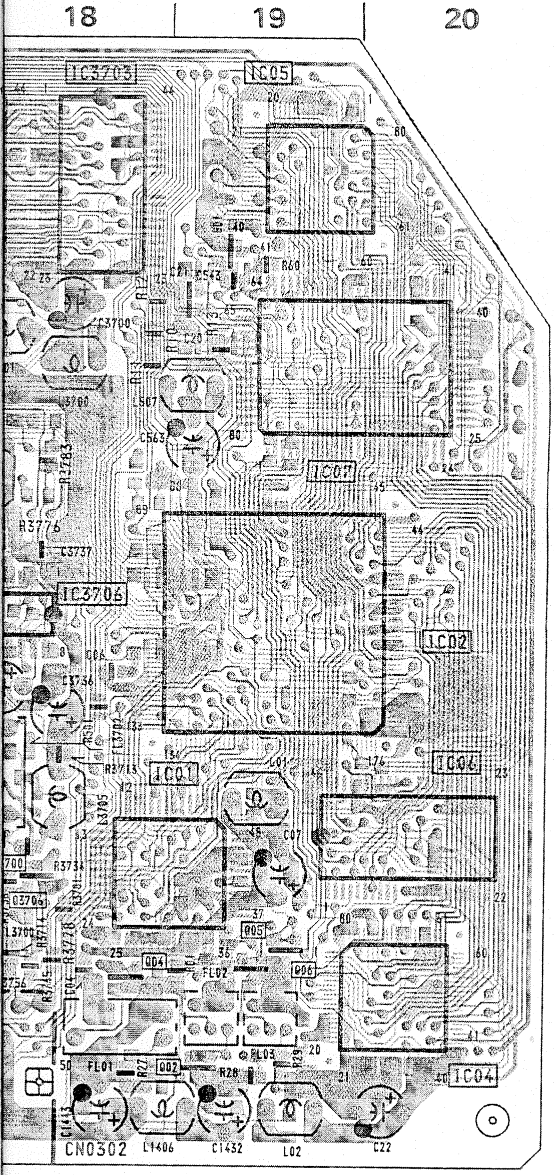
11
12
13
14
15
16
17
18
19
20
B1
SONY
A-1620-067-A
(1-711-080-11)
1-658-486-11
A
CN0301
CN0302
IC3700
IC3701
IC3702
IC3703
IC504
IC502
IC301
IC302
IC1301
IC1302
IC007
IC002
IC001
IC004
IC005
IC006


18
19
20
IC3703
IC05
IC07
IC3706
IC02
IC01
IC04
CN0302
L1406
C1432
L02
C22
FL01
FL02
R3776
R3737
R3734

B1 BOARD

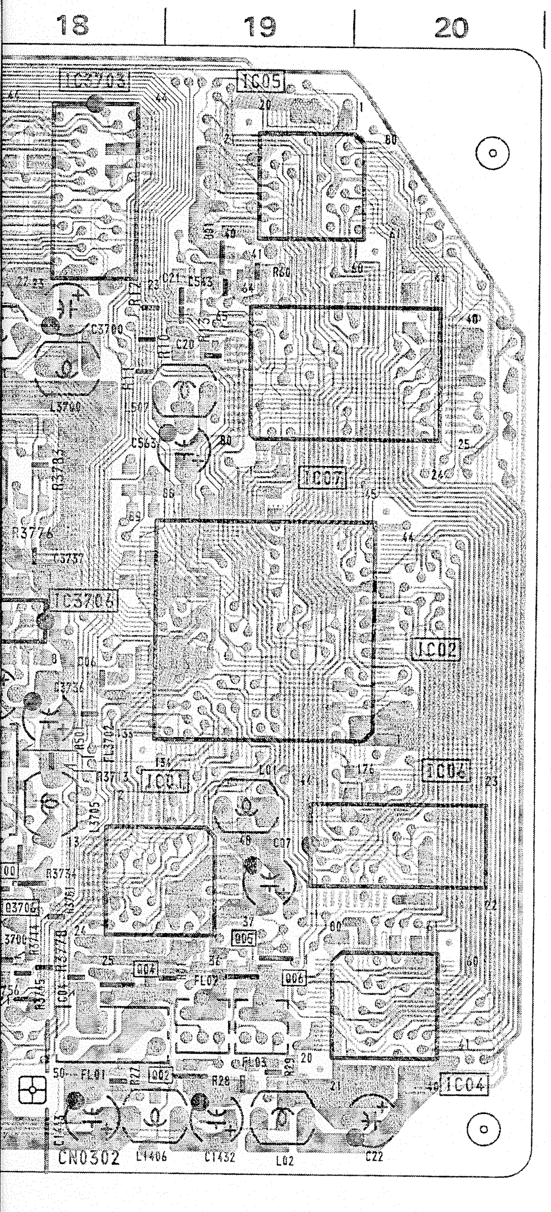
IC	
IC01	D-19
IC02	D-20
IC04	F-20
IC05	A-19
IC06	D-20
IC07	C-19
IC301	D-11
IC302	C-11
IC501	C-2
IC502	A-14
IC503	E-13
IC504	D-15
IC505	A-9
IC506	B-15
IC507	B-2
○ IC509	C-13
○ IC510	C-7
○ IC511	C-13
○ IC512	C-6
○ IC513	C-15
IC1301	E-11
IC1302	D-13
IC1305	E-12
IC3701	B-17
IC3702	A-17
IC3703	A-18
IC3704	C-17
IC3705	C-17
IC3706	C-18
IC3707	C-4
IC3708	C-16
IC3709	E-15
IC3710	B-5
IC3712	D-15
○ IC3713	E-4
IC3714	C-5

TRANSISTOR	
Q01	F-3
Q02	F-19
Q03	F-2
Q04	E-18
Q05	E-19
Q06	E-19
Q301	C-10
Q302	B-10
Q303	B-9
Q304	D-12
Q305	C-12
Q306	B-11
Q307	B-9
Q308	C-8
Q309	C-9
● Q351	F-6
● Q352	E-6
● Q353	F-6
● Q354	E-8
● Q356	E-7
● Q358	E-6
Q359	D-7
Q360	D-6
Q501	F-13
Q502	F-13
Q503	F-13
Q504	B-6
● Q505	E-8
Q506	A-6
Q507	F-7
Q508	F-7
Q509	F-8
● Q510	E-13
Q1301	E-9
Q1302	E-10
Q1303	E-9
Q1304	E-10
Q1305	E-10
Q1306	E-10
Q1307	E-9
Q1316	E-12
Q1317	D-9
Q1318	D-12
Q1319	D-12
Q3700	E-18
Q3701	E-17
Q3703	C-3
Q3704	B-4
Q3706	E-18
Q3708	E-16
Q3709	E-17
Q3710	E-3
Q3712	D-17
Q3713	E-18

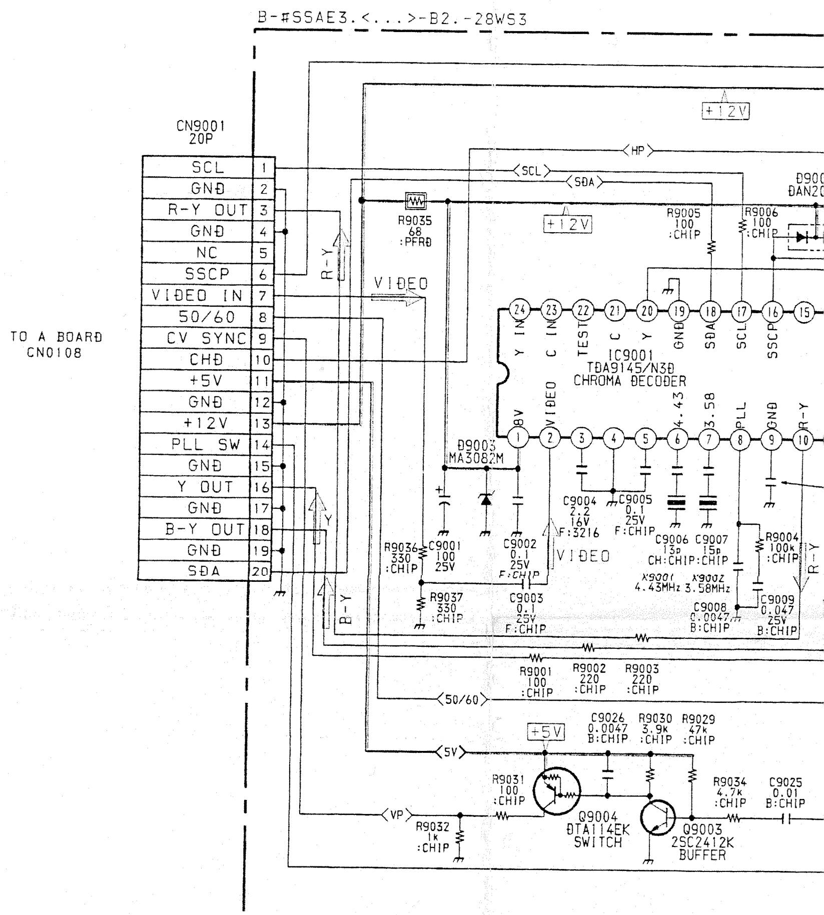
DIODE	
D01	A-19
D301	C-8
D302	B-8
D303	D-10
D1301	F-10
D1302	F-9
D1304	E-12
D1309	F-11
D3700	D-4
D3701	B-6
D3702	B-6
D3703	E-6

○ mark : KV-28WS3A,3D,3E,3K and 3U only

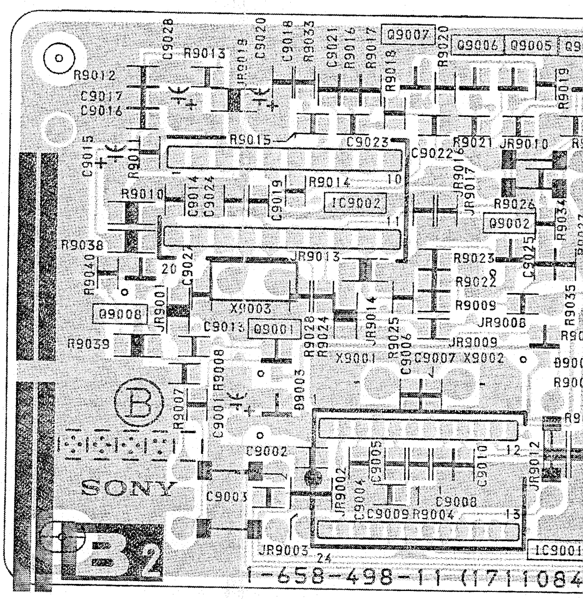
● mark : KV-28WS3B only


18
19
20
IC3703
IC05
IC07
IC3706
IC02
IC01
IC04
CN0302
L1406
C1432
L02
C22
FL01
FL02

(KV-28WS3B ONLY)

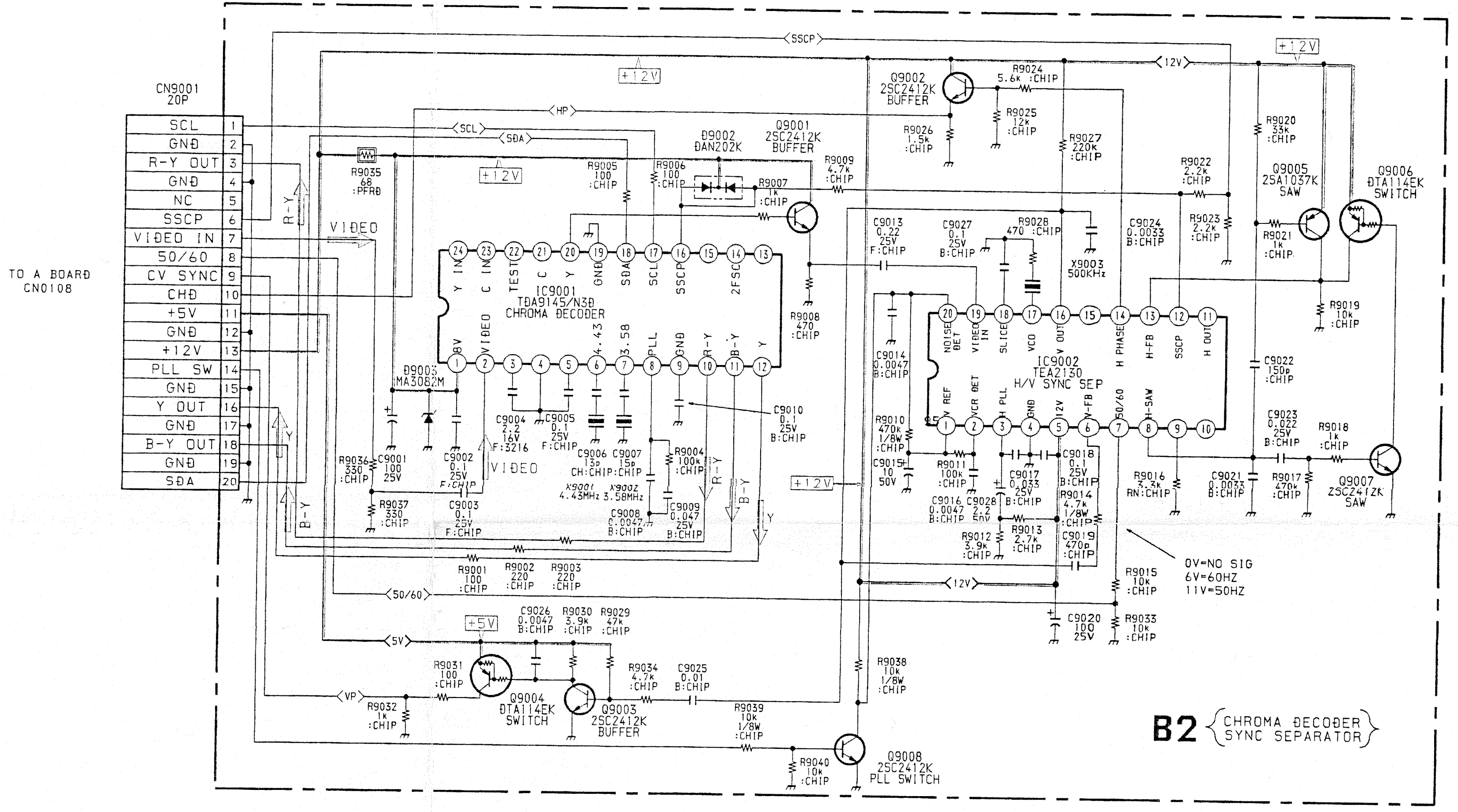

B-#SSAE3.<...>-B2.-28WS3
CN9001
20P
SCL 1
GND 2
R-Y OUT 3
GND 4
NC 5
SSCP 6
VIDEO IN 7
50/60 8
CV SYNC 9
CHD 10
+5V 11
GND 12
+12V 13
PLL SW 14
GND 15
Y OUT 16
GND 17
B-Y OUT 18
GND 19
SDA 20
TO A BOARD
CN0108
+12V
HP
SCL
SDA
R9035
68
:PFRD
R9005
100
:CHIP
R9006
100
:CHIP
D900
DAN2
R-Y
VIDEO
IC9001
TDA9145/N3D
CHROMA DECODER
Y IN
C IN
TEST
C
Y
GND
SDA
SCL
SSCP
8V
VIDEO
4.43
3.58
PLL
GND
R-Y
D9003
MA3082M
C9004
2.2
16V
F:3216
C9005
0.1
25V
F:CHIP
C9006
13p
CH:CHIP
C9007
15p
:CHIP
R9004
100k
:CHIP
X9001
4.43MHz
X9002
3.58MHz
C9008
0.0047
B:CHIP
C9009
0.047
25V
B:CHIP
R9036
330
:CHIP
C9001
100
25V
C9002
0.1
25V
F:CHIP
C9003
0.1
25V
F:CHIP
R9037
330
:CHIP
B-Y
Y
R9001
100
:CHIP
R9002
220
:CHIP
R9003
220
:CHIP
50/60
+5V
5V
C9026
0.0047
B:CHIP
R9030
3.9k
:CHIP
R9029
47k
:CHIP
R9031
100
:CHIP
VP
R9032
1k
:CHIP
Q9004
DTA114EK
SWITCH
Q9003
2SC2412K
BUFFER
R9034
4.7k
:CHIP
C9025
0.01
B:CHIP

— B2 Board — (KV-28WS3B ONLY)


R9013
R9012
C9017
C9016
R9015
C9023
C9022
R9021
JR9010
R9014
IC9002
R9026
Q9002
R9010
R9038
R9023
R9022
R9009
JR9006
X9003
Q9008
C9013
Q9001
R9039
X9001
C9007
X9002
SONY
C9002
C9003
C9008
C9009
R9004
JR9003
IC9001
B2
1-658-498-11 (1711084

(KV-28WS3B ONLY)

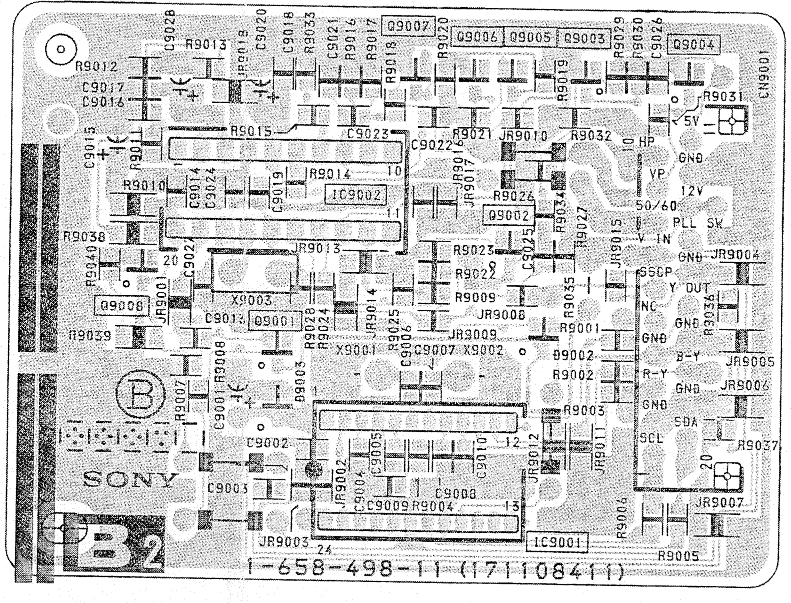
B-#SSAE3.<...>-B2.-28WS3



CN9001 20P
SCL 1
GND 2
R-Y OUT 3
GND 4
NC 5
SSCP 6
VIDEO IN 7
50/60 8
CV SYNC 9
CHD 10
+5V 11
GND 12
+12V 13
PLL SW 14
GND 15
Y OUT 16
GND 17
B-Y OUT 18
GND 19
SDA 20
TO A BOARD CN0108
IC9001 TDA9145/N3D CHROMA DECODER
IC9002 TEA2130 H/V SYNC SEP
Q9001 2SC2412K BUFFER
Q9002 2SC2412K BUFFER
Q9003 2SC2412K BUFFER
Q9004 DTA114EK SWITCH
Q9005 2SA1037K SAW
Q9006 DTA114EK SWITCH
Q9007 2SC2412K SAW
Q9008 2SC2412K PLL SWITCH
D9002 DAN202K
D9003 MA3082M
X9001 4.43MHz
X9002 3.58MHz
X9003 500KHz
0V=NO SIG
6V=60HZ
11V=50HZ
B2 CHROMA DECODER SYNC SEPARATOR

U only

— B2 Board — (KV-28WS3B ONLY)



SONY
B2
1-658-498-11 (171108411)
IC9001
IC9002
CN9001

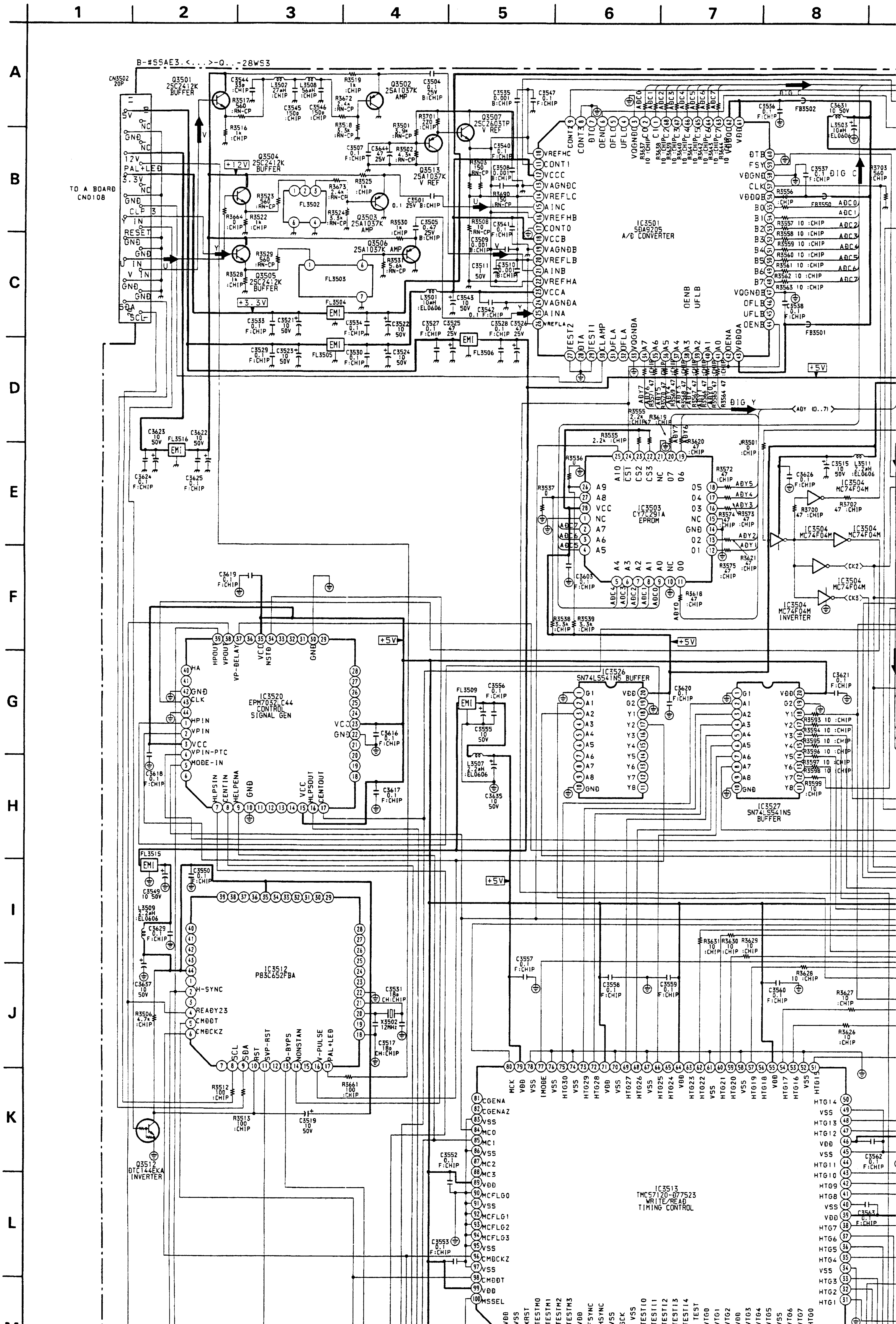
Ref.No.	Pin No.	Voltage (V)
IC3501	6	0.1
	9	0.1
	10	2.4
	11	4.8
	12	4.8
	14	0.5
	15	2.8
	16	2.4
	18	4.7
	21	2.6
	22	2.4
	23	4.7
	25	2.2
	26	0.5
	30	0.1
	42	4.4
	43	4.8
	56	4.8
	57	1.4
	59	4.2
	61	4.8
	62	4.8
	26	0.5
	27-29	-
	61	6.3
	62	4.2
IC3503	22	4.8
	23	4.3
	24	4.3
	28	4.8
IC3506	1	4.8
	2	1.2
	3	2.1
	4	1.6
	5	1.2
	6	2.2
	7	1.6
	9	1.6
	10	2.0
	11	1.1
	12	1.6
	13	2.0
	14	1.1
	16	4.8
IC3507	1	4.8
	2	1.3
	3	2.4
	4	2.0
	5	1.2
	6	2.0
	7	1.7
	9	1.4
	10	1.5
	11	0.9
	12	0.5
	13	0.4
	14	0.3
	16	4.8
IC3508	1	4.8
	2-7	1.2
	9	1.2
	10	1.5
	11	0.9
	12	1.3
	13	1.6
	14	1.3
	16	4.8
IC3509	1	4.8
	2	0.9
	3	1.5
	4	1.2
	5	1.3
	6	1.6
	7	1.3
	9	1.2
	10	1.5
	11	0.9
	12	2.4
	13	3.0
	14	1.6
	16	4.8
IC3510	1	4.8
	4	0.1
	5-6	2.3
	7	1.5
	9	1.6
	10-11	2.3
	12	4.3
	13	4.8
	14	4.2
	16	4.8
IC3511	3	1.6
	5	1.8
	6	4.8
	11	4.8
	13	4.8
	15	4.8
	17	2.4
	19	4.8
	22	4.8
	25	4.2
	26	1.8
	27	1.6
	28	4.8
	29-30	1.2
	34	4.8
	44	4.8
	58	4.8
	63	4.8
	71	4.8
	72	4.8
	73	1.3
	75	1.1
	88	4.8
	91-93	4.8
	107	4.8
	117	4.8
IC3512	2	2.4
	4	2.4
	5	4.8
	8-9	4.0
	11	4.8
	13	4.8
	14	1.5
	16	4.8
	17	0.1
	20	4.8
	21	2.5
	35	4.8
	44	4.8
IC3513	1	4.8
	3	4.8
	8	4.8
	9	2.3
	10	2.3
	12	1.7
	21	4.8
	23	4.8
	30	2.3
	31	2.3
	36	3.9
	37	3.8
	39	4.8
	46	4.8
	48	1.2
	50	4.6
	51	4.2
	55	4.8
	57	4.2
	59	1.0
	60	1.8
	64	4.8
	71	4.8
	77	4.8
	79	4.8
	80	1.3
	89	4.8
	98	4.8
	99	4.8

All Voltages are indicated in Volts DC

Ref.No.	Pin No.	Voltage (V)
IC3514 IC3515	3	4.2
	5	1.6
	23	1.6
	25	4.2
	28	4.8
IC3516 IC3517	6	1.6
	7-8	0.1
	10	0.1
	11	3.0
	13	1.6
	23	3.2
	36-38	3.2
	40	3.2
	53	3.2
	62	3.2
	79-81	0.1
	83-84	3.0
	85	1.6
	87-88	3.2
	90	0.1
	93	0.1
	98-99	0.1
IC3520	1	1.8
	2	0.1
	3	4.8
	8	4.8
	15	4.8
	17	4.8
	23	4.8
	34	1.4
	35	4.8
	38-39	2.4
	43	1.8
IC3521	1	0.5
	2-3	4.8
	8	1.2
	9-10	4.0
	11	1.5
	14	4.8
IC3525	6-7	3.8
	11-12	0.1
	13-14	3.0
	15-18	0.1
	20	4.8
IC3527	9	1.7
	12-18	0.1
	20	4.8
IC3528	1-2	4.8
	3	2.3
	6	2.3
	9	0.1
	12	0.1
	14	4.1
	16	4.8

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q3501	5.2	12.0	4.6
Q3502	2.5	0	3.1
Q3503	-	0	-
Q3504	5.2	12.0	4.6
Q3505	5.6	12.0	5.0
Q3506	2.5	0	3.1
Q3507	3.1	4.7	2.4
Q3510	0	0	0
Q3512	3.8	0	0
Q3513	2.5	0	3.1

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q3501	5.2	12.0	4.6
Q3502	2.5	0	3.1
Q3503	-	0	-
Q3504	5.2	12.0	4.6
Q3505	5.6	12.0	5.0
Q3506	2.5	0	3.1
Q3507	3.1	4.7	2.4
Q3510	0	0	0
Q3512	3.8	0	0
Q3513	2.5	0	3.1



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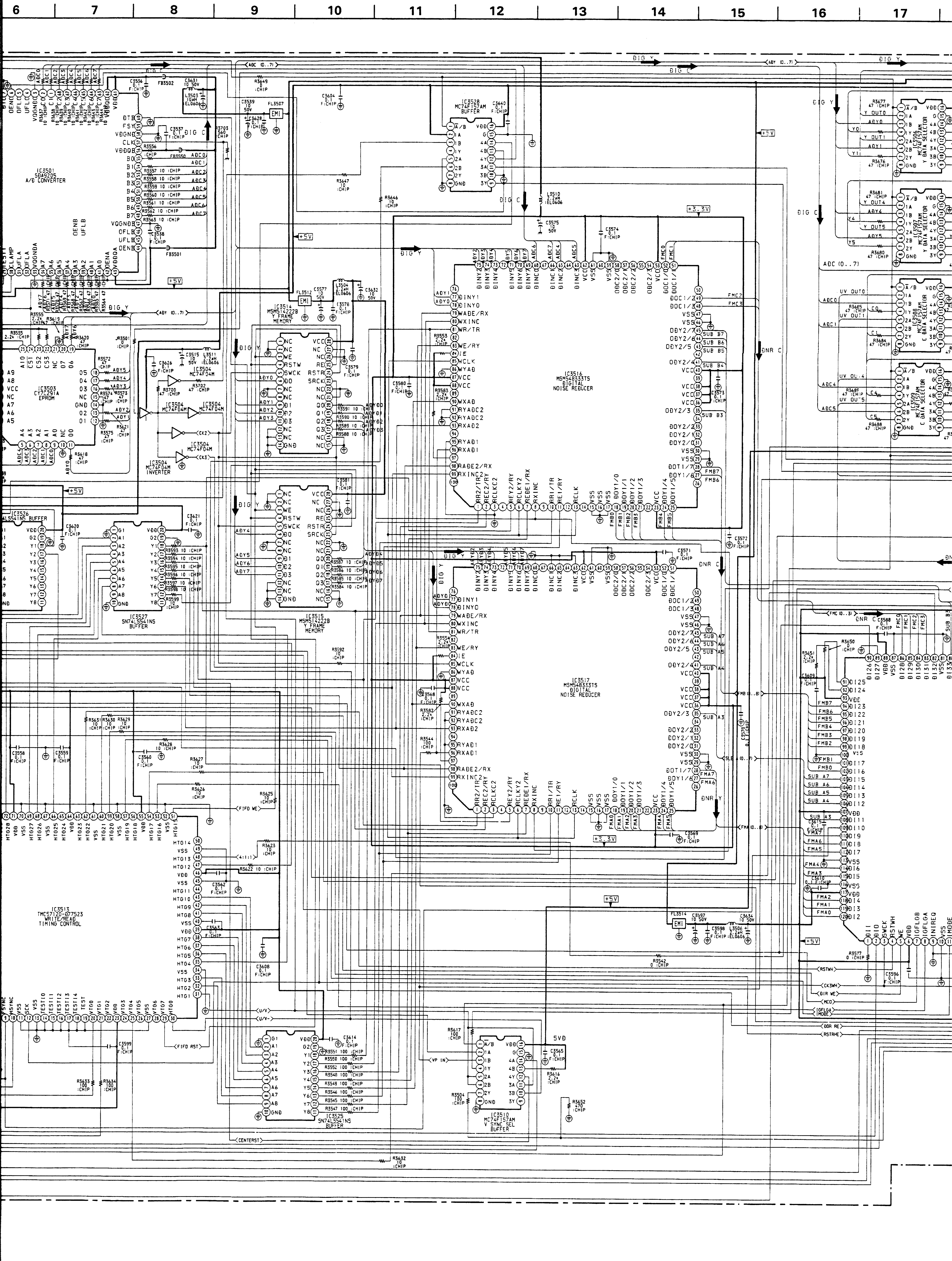
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
CN3502 20P
TO A BOARD CN0108
Q3501 2SC2412K BUFFER
Q3502 2SA1037K AMP
Q3503 2SA1037K AMP
Q3504 2SC2412K BUFFER
Q3505 2SC2412K BUFFER
Q3506 2SA1037K AMP
Q3507 2SC2603TP V REF
Q3513 2SA1037K V REF
Q3512 DTC144EKA INVERTER
FL3502
FL3503
IC3501 SDA9205 A/D CONVERTER
IC3503 CY7C291A EPROM
IC3504 MC74F04M INVERTER
IC3520 EPM7032LC44 CONTROL SIGNAL GEN
IC3526 SN74LS541NS BUFFER
IC3527 SN74LS541NS BUFFER
IC3512 P83C652FBA
IC3513 TMC57120-077523 WRITE/READ TIMING CONTROL
DIG Y
DIG C
+5V
+12V
+3.3V
PON RES
FSYNC
HSYNC
FIFO RST
X3502 12MHz

6
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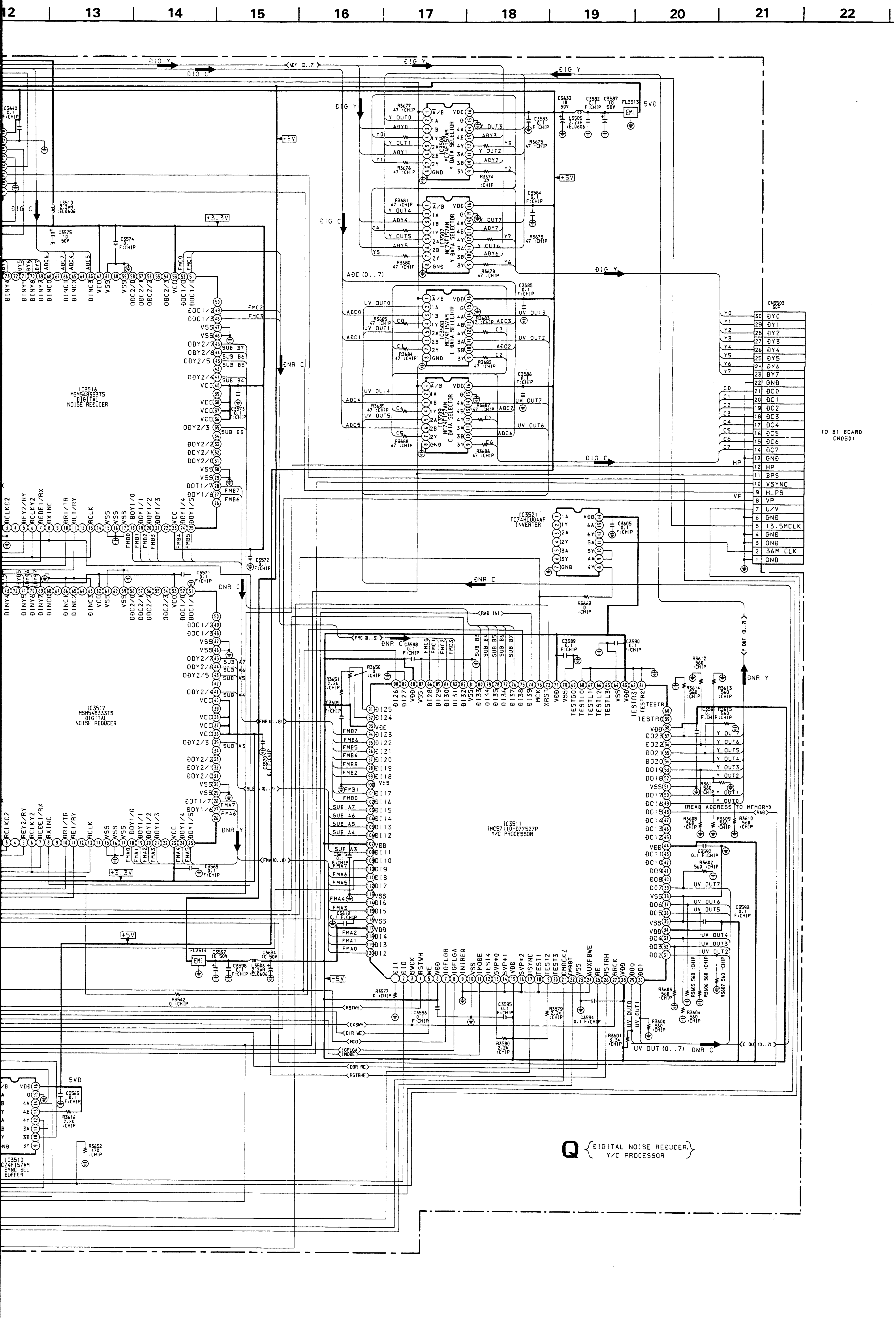
16
17
IC3501
SDA9205
A/D CONVERTER
IC3503
CY7C291A
EPROM
IC3504
MC74F04M
INVERTER
IC3514
MSM514222B
Y FRAME
MEMORY
IC3515
MSM514222B
Y FRAME
MEMORY
IC3528
MC74F157AM
BUFFER
IC3516
MSM548333TS
DIGITAL
NOISE REDUCER
IC3517
MSM548333TS
DIGITAL
NOISE REDUCER
IC3526
74LS541NS BUFFER
IC3527
SN74LS541NS
BUFFER
IC3513
TMC57120-D77523
WRITE/READ
TIMING CONTROL
IC3525
SN74LS541NS
BUFFER
IC3510
MC74F157AM
V SYNC SEL
BUFFER
IC3506
MC74F157AM
Y DATA SELECTOR
IC3507
MC74F157AM
Y DATA SELECTOR
IC3508
MC74F157AM
C DATA SELECTOR
IC3509
MC74F157AM
C DATA SELECTOR
DIG Y
DIG C
DNR Y
DNR C
ADC (0..7)
ADY (0..7)
FMC (0..3)
FMB (0..8)
FMA (0..8)
SLB (0..7)
+5V
+3.3V
5VD
FIFO WE
FIFO RST
U/V
VP IN
CENTERST
RSTWH
CK3WH
DIR WE
MCO
IGFLGA
IMODE
DDR RE
RSTRHE
EMI


12
13
14
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16
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18
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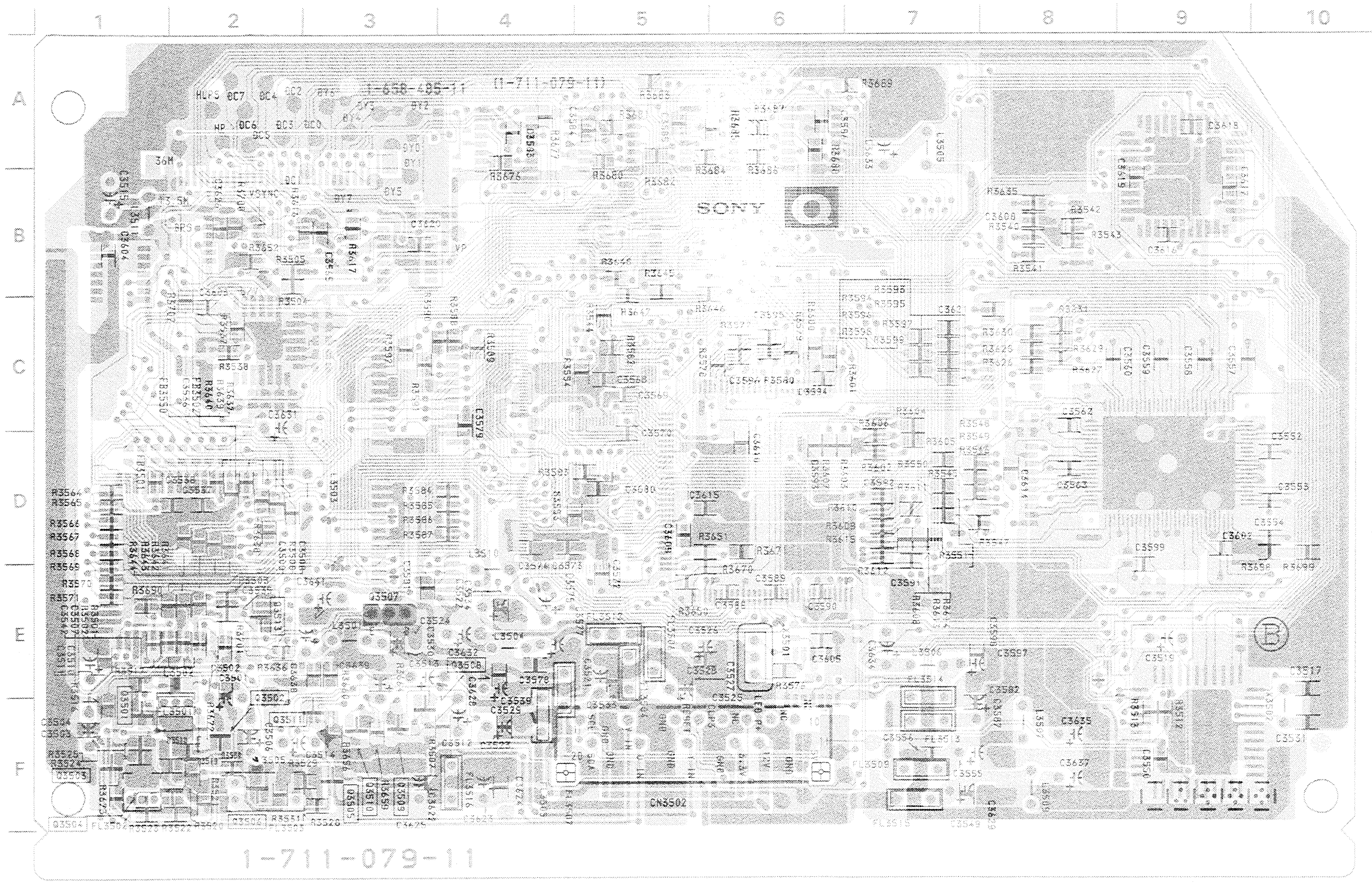
20
21
22
DIG Y
DIG C
DNR C
DNR Y
5VD
+5V
+3.3V
IC3506 MC74F157AM Y DATA SELECTOR
IC3507 MC74F157AM Y DATA SELECTOR
IC3508 MC74F157AM C DATA SELECTOR
IC3509 MC74F157AM C DATA SELECTOR
IC3516 MSM548333TS DIGITAL NOISE REDUCER
IC3517 MSM548333TS DIGITAL NOISE REDUCER
IC3521 TC74HCU04AF INVERTER
IC3511 TMC57110-077527P Y/C PROCESSOR
IC3510 MC74F157AM SYNC SEL BUFFER
FL3513
FL3514
EMI
CN3503 30P
30 DY0
29 DY1
28 DY2
27 DY3
26 DY4
25 DY5
24 DY6
23 DY7
22 GND
21 DC0
20 DC1
19 DC2
18 DC3
17 DC4
16 DC5
15 DC6
14 DC7
13 GND
12 HP
11 BPS
10 VSYNC
9 HLPS
8 VP
7 U/V
6 GND
5 13.5MCLK
4 GND
3 GND
2 36M CLK
1 GND
TO B1 BOARD CN0501
UV OUT (0..7)
Y OUT (0..7)
C OUT (0..7)
READ ADDRESS TO MEMORY

Q {DIGITAL NOISE REDUCER, Y/C PROCESSOR}

Q [DIGITAL NOISE REDUCER, Y/C PROCESSOR]

— Q Board — <Conductor Side> (KV-28WS3A, 3D, 3E, 3K, 3U ONLY)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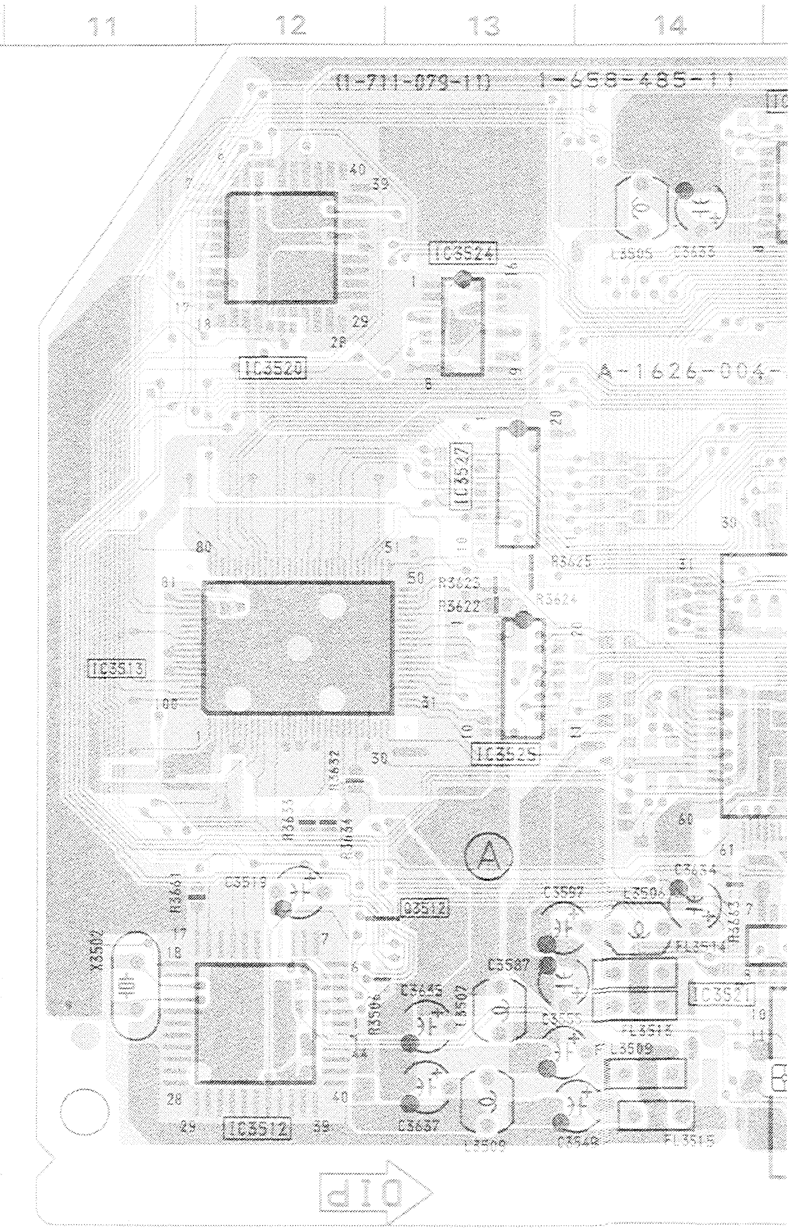
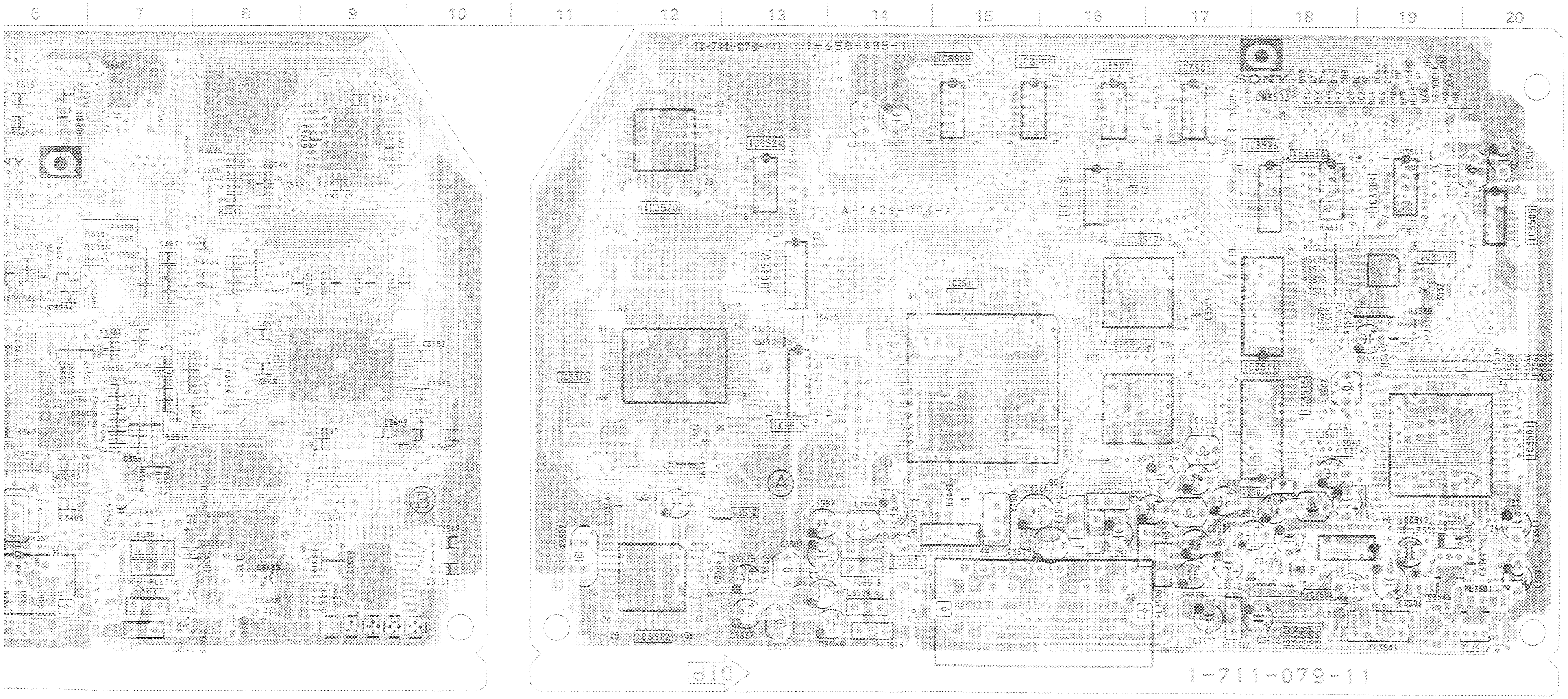
A
B
C
D
E
F
1-658-485-11
(1-711-079-11)
SONY
CN3502
B
1-711-079-11

— Q Board — <Component Side> (KV-28WS3A, 3D, 3E, 3K,


11
12
13
14
(1-711-079-11)
1-658-485-11
IC3524
IC3520
IC3527
IC3513
IC3525
IC3512
A-1626-004-
A
X3502
DIP

— Q Board — <Component Side> (KV-28WS3A, 3D, 3E, 3K, 3U ONLY)


6
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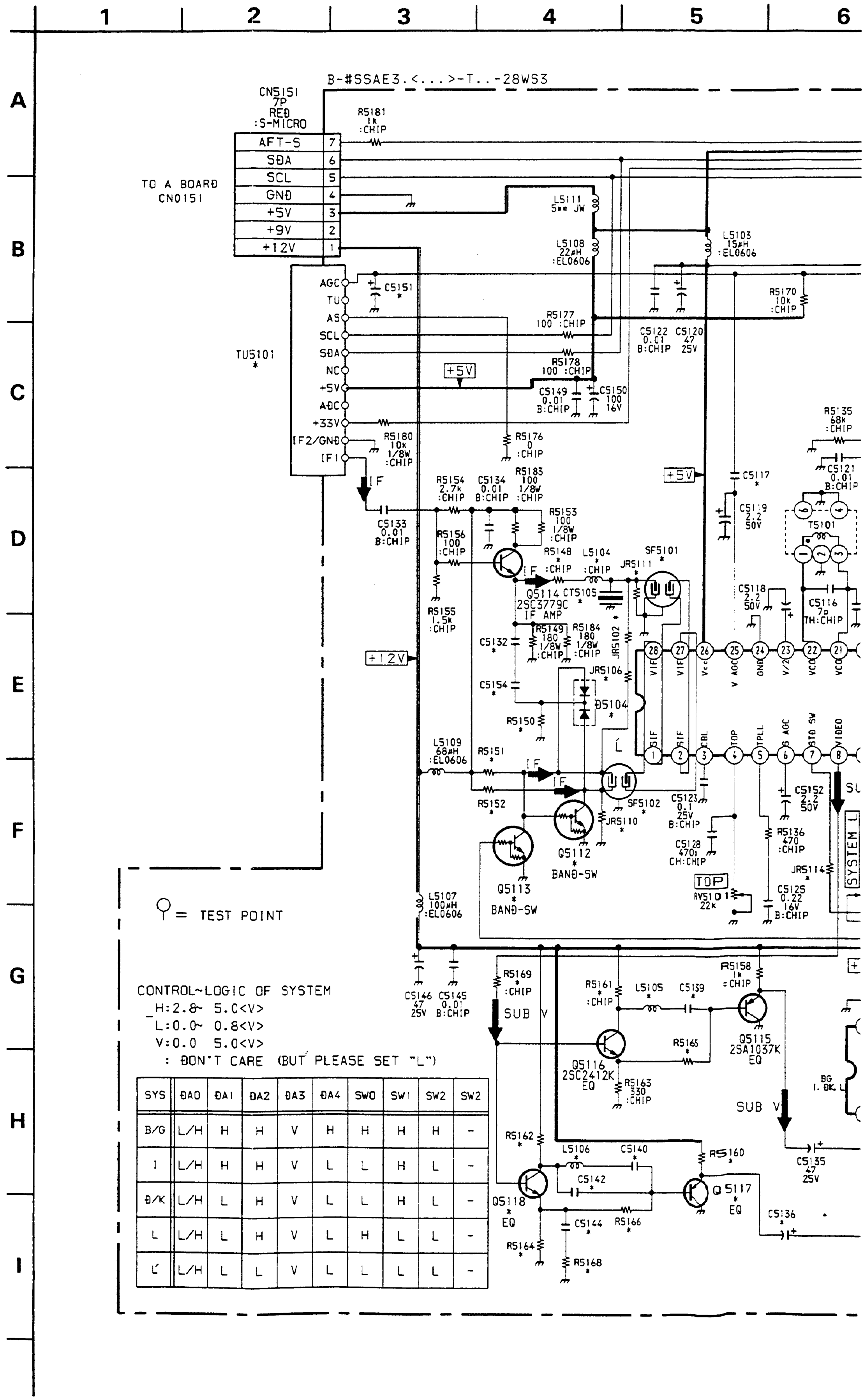
14
15
16
17
18
19
20
(1-711-079-11)
1-658-485-11
A-1626-004-A
SONY
CN3503
Ⓐ
Ⓑ
DIP
1-711-079-11

Q BOARD

IC	
IC3501	D-20
IC3503	C-19
IC3504	B-19
IC3506	A-17
IC3507	A-16
IC3508	A-15
IC3509	A-15
IC3510	B-18
IC3511	C-15
IC3512	F-12
IC3513	D-11
IC3514	D-18
IC3515	D-18
IC3516	D-16
IC3517	C-16
IC3520	B-12
IC3521	F-14
IC3525	D-13
IC3526	B-18
IC3527	C-13
IC3528	B-16
TRANSISTOR	
Q3501	E-1
Q3502	E-2
Q3503	F-1
Q3504	F-1
Q3505	F-3
Q3506	F-2
Q3507	E-3
Q3512	E-13
Q3513	E-2

T BOARD * MARK

Ref. No. \ Model	28WS3A	28WS3B	28WS3D	28WS3E	28WS3K	28WS3U
C5111	–	0.01MF	–	–	–	–
C5112	0.01MF	0.01MF	0.01MF	0.01MF	0.01MF	0 : CHIP
C5113	–	0.018MF	–	–	–	–
C5117	–	1MF	–	–	–	–
C5129	–	0.0039MF	–	–	–	–
C5132	–	0.01MF	–	–	–	–
C5136	–	47MF 25V	–	–	–	–
C5137	0.018MF	–	0.018MF	0.018MF	0.018MF	0.018MF
C5139	–	100P	–	–	–	–
C5140	–	68P	–	–	–	–
C5142	–	33P	–	–	–	–
C5144	–	15P	–	–	–	–
C5151	10MF 50V	100MF 16V	10MF 50V	10MF 50V	10MF 50V	10MF 50V
C5154	–	0 : CHIP	–	–	–	–
CF5101	5.5MHz	6.0MHz	5.5MHz	5.5MHz	5.5MHz	–
CF5102	–	FILTER	–	–	–	–
CF5103	–	5.5MHz	–	–	–	6.0MHz
CT5104	5.5MHz	5.5MHz	5.5MHz	5.5MHz	5.5MHz	6.0MHz
CT5105	–	TRAP	–	–	–	–
D5102	DAN202K	DAN202K	DAN202K	DAN202K	DAN202K	–
D5103	–	DAN202K	–	–	–	–
D5104	–	DAN202K	–	–	–	–
IC5103	TDA9813T	TDA9814T	TDA9813T	TDA9813T	TDA9813T	TDA9813T
IC5104	–	NJM2233BM	–	–	–	–
JR5102	–	0 : CHIP	–	–	–	–
JR5105	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
JR5106	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
JR5107	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
JR5110	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
JR5111	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
JR5113	0 : CHIP	–	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
JR5114	–	0 : CHIP	–	–	–	–
JR5115	–	0 : CHIP	–	–	–	–
L5102	8.2μH	6.8μH	8.2μH	8.2μH	8.2μH	6.8μH
L5104	JW	0.22μH	JW	JW	JW	JW
L5105	–	10μH	–	–	–	–
L5106	–	39μH	–	–	–	–
Q5104	DTC144EKA	DTC144EKA	DTC144EKA	DTC144EKA	DTC144EKA	–
Q5105	DTC144EKA	DTC144EKA	DTC144EKA	DTC144EKA	DTC144EKA	–
Q5106	–	DTC144EKA	–	–	–	–
Q5107	–	DTC144EKA	–	–	–	–
Q5110	–	2SC2412K	–	–	–	–
Q5111	–	DTC144EKA	–	–	–	–
Q5112	–	DTC144EKA	–	–	–	–
Q5113	–	DTC144EKA	–	–	–	–
Q5117	–	2SA1037K	–	–	–	–
Q5118	–	2SC2412K	–	–	–	–
Q5121	–	DTC144EKA	–	–	–	–
R5112	–	10K	–	–	–	–
R5115	–	10K	–	–	–	–
R5116	–	10K	–	–	–	–
R5117	–	1K	–	–	–	–
R5119	1K	1K	1K	1K	1K	–
R5123	2.2K	2.2K	2.2K	2.2K	2.2K	–
R5124	2.2K	2.2K	2.2K	2.2K	2.2K	–
R5125	–	2.2K	–	–	–	–
R5126	–	2.2K	–	–	–	–
R5127	560	560	560	560	560	–
R5128	560	560	560	560	560	–
R5129	2.2K	2.2K	2.2K	2.2K	2.2K	–
R5130	–	2.2K	–	–	–	–
R5131	0 : CHIP	560	0 : CHIP	0 : CHIP	0 : CHIP	560
R5132	150	120	150	150	150	150
R5140	–	5.6K	–	–	–	–
R5141	–	10K	–	–	–	–
R5148	0 : CHIP	47	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R5150	–	2.2K	–	–	–	–
R5151	–	2.2K	–	–	–	–
R5152	–	2.2K	–	–	–	–
R5160	–	1K	–	–	–	–
R5161	0 : CHIP	330	0 : CHIP	0 : CHIP	0 : CHIP	0 : CHIP
R5162	–	330	–	–	–	–
R5164	–	330	–	–	–	–
R5165	100	560	100	100	100	100
R5166	–	1K	–	–	–	–
R5168	–	0 : CHIP	–	–	–	–
R5169	1K	220	1K	1K	1K	1K
R5182	–	1K	–	–	–	–
RV5102	–	22K	–	–	–	–
SF5101	1-760-538-11	1-579-273-11	1-760-538-11	1-760-538-11	1-760-538-11	1-760-757-11
SF5102	–	1-760-244-11	–	–	–	–
TU5101	UV1316	UV1316	UV1316	UV1316	UV1316	U1344



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A
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G
H
I
B-#SSAE3.<...>-T..-28WS3
CN5151 7P REB :S-MICRO
TO A BOARD CN0151
AFT-S
SDA
SCL
GND
+5V
+9V
+12V
TU5101
AGC
TU
AS
SCL
SDA
NC
+5V
ADC
+33V
IF2/GND
IF1
R5181 1k :CHIP
L5111 5** JW
L5108 22μH :EL0606
L5103 15μH :EL0606
C5151
R5177 100 :CHIP
R5178 100 :CHIP
C5149 0.01 B:CHIP
C5150 100 16V
C5122 0.01 B:CHIP
C5120 47 25V
R5170 10k :CHIP
R5180 10k 1/8W :CHIP
R5176 0 :CHIP
R5183 100 1/8W :CHIP
R5154 2.7k :CHIP
C5134 0.01 B:CHIP
C5133 0.01 B:CHIP
R5153 100 1/8W :CHIP
R5156 100 :CHIP
R5148 :CHIP
L5104 :CHIP
JR5111
SF5101
Q5114 2SC3779C IF AMP
CT5105
R5155 1.5k :CHIP
R5149 180 1/8W :CHIP
R5184 180 1/8W :CHIP
JR5102
C5132
C5154
JR5106
Q5104
R5150
L5109 68μH :EL0606
R5151
R5152
SF5102
JR5110
Q5112 BAND-SW
Q5113 BAND-SW
L5107 100μH :EL0606
C5146 47 25V
C5145 0.01 B:CHIP
+5V
+12V
C5117
C5119 2.2 50V
C5121 0.01 B:CHIP
T5101
C5118 2.2 50V
C5116 7p TH:CHIP
R5135 68k :CHIP
C5123 0.1 25V B:CHIP
C5128 470p CH:CHIP
C5152 2.2 50V
R5136 470 :CHIP
JR5114
C5125 0.22 16V B:CHIP
TOP
RV5101 22k
SYSTEM
R5169 :CHIP
SUB V
R5161 :CHIP
L5105
C5139
R5158 1k :CHIP
Q5116 2SC2412K EQ
R5163 330 :CHIP
R5165
Q5115 2SA1037K EQ
BG I, DK, L
SUB V
R5162
L5106
C5140
C5142
R5160
Q5117 EQ
Q5118 EQ
C5144
R5166
R5164
R5168
C5135 47 25V
C5136

⚲ = TEST POINT

CONTROL~LOGIC OF SYSTEM
H:2.8~ 5.0<V>
L:0.0~ 0.8<V>
V:0.0 5.0<V>
: DON'T CARE (BUT PLEASE SET "L")

SYS	DA0	DA1	DA2	DA3	DA4	SW0	SW1	SW2	SW2
B/G	L/H	H	H	V	H	H	H	H	-
I	L/H	H	H	V	L	L	H	L	-
D/K	L/H	L	H	V	L	L	H	L	-
L	L/H	L	H	V	L	H	L	L	-
L′	L/H	L	L	V	L	L	L	L	-

28WS3U
-
0 : CHIP
-
-
-
-
-
0.018MF
-
-
-
-
10MF 50V
-
-
-
6.0MHz
6.0MHz
-
-
-
-
TDA9813T
-
-
0 : CHIP
0 : CHIP
0 : CHIP
0 : CHIP
0 : CHIP
0 : CHIP
-
-
6.8µH
JW
-
-
-
-
-
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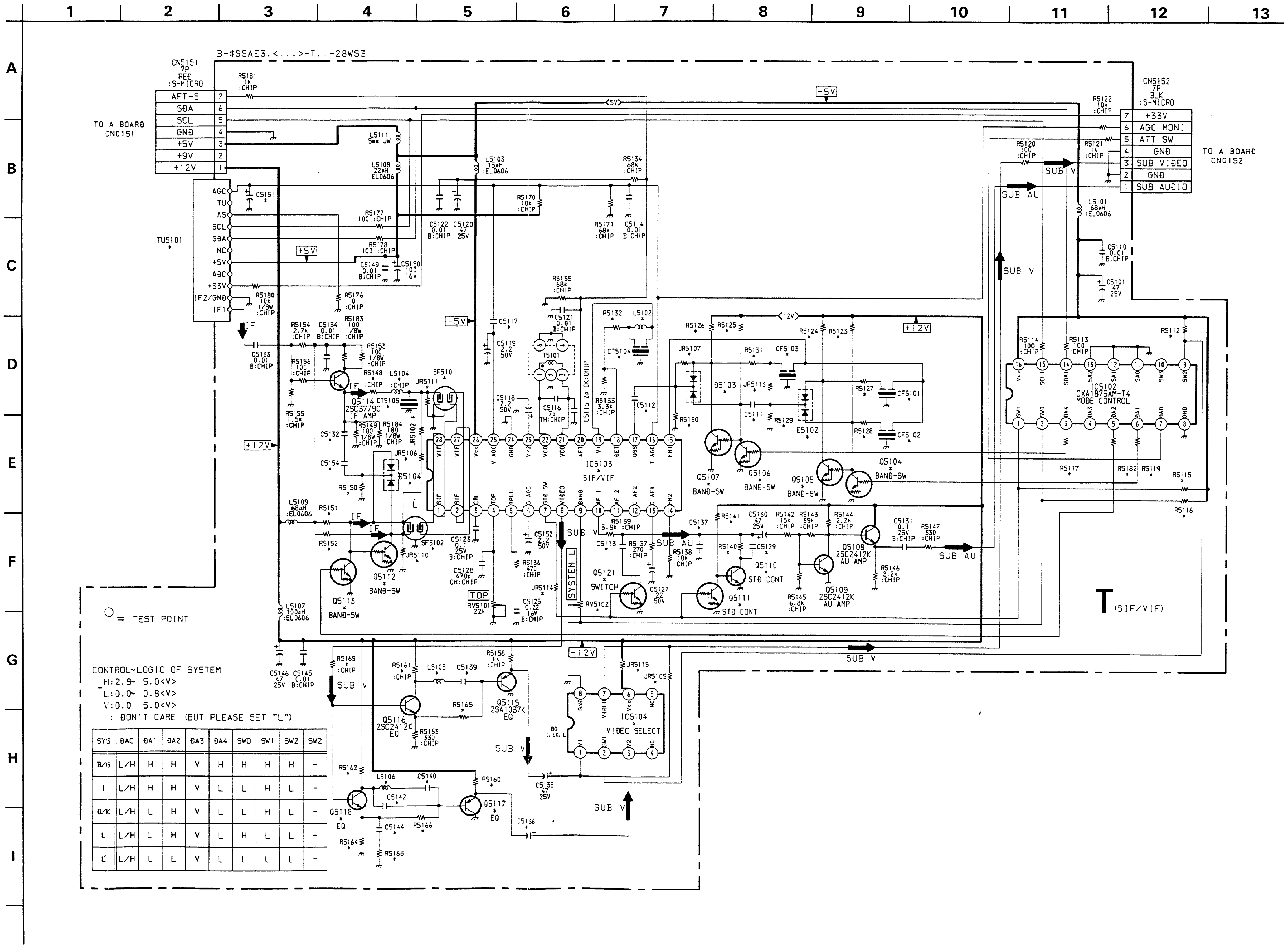
-
-
-
-
560
150
-
-
0 : CHIP
-
-
-
-
0 : CHIP
-
-
100
-
-
1K
-
-
1-760-757-11
-
U1344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A
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C
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F
G
H
I
B-#SSAE3.<...>-T..-28WS3
CN5151 7P RED :S-MICRO
AFT-S
SDA
SCL
GND
+5V
+9V
+12V
TO A BOARD CN0151
R5181 1k :CHIP
TU5101
AGC
TU
AS
SCL
SDA
NC
+5V
ABC
+33V
IF2/GND
IF1
C5151
R5177 100 :CHIP
R5178 100 :CHIP
C5149 0.01 B:CHIP
C5150 100 16V
L5111 5** JW
L5108 22µH :EL0606
L5103 15µH :EL0606
C5122 0.01 B:CHIP
C5120 47 25V
R5170 10k :CHIP
R5134 68k :CHIP
R5171 68k :CHIP
C5114 0.01 B:CHIP
+5V
<5V>
R5180 10k 1/8W :CHIP
R5176 0 :CHIP
R5183 100 1/8W :CHIP
C5133 0.01 B:CHIP
R5154 2.7k :CHIP
C5134 0.01 B:CHIP
R5153 100 1/8W :CHIP
R5156 100 :CHIP
R5148 :CHIP
L5104 :CHIP
JR5111
SF5101
Q5114 2SC3779C IF AMP
CT5105
R5149 180 1/8W :CHIP
R5184 180 1/8W :CHIP
JR5102
R5155 1.5k :CHIP
C5132
C5154
JR5106
D5104
R5150
+12V
-5V
C5117
C5119 2.2 50V
C5118 2.2 50V
R5135 68k :CHIP
C5121 0.01 B:CHIP
T5101
C5116 7p TH:CHIP
C5115 2p CK:CHIP
R5133 3.3k :CHIP
R5132
L5102
CT5104
C5112
R5130
IC5103 SIF/VIF
Vcc
V AGC
GND
V/2
VCO
VCO
AFT
QSS
T AGC
FMI
SIF
SIF
VIF
VIF
CBL
TOP
VPLL
AGC
STD SW
VIDEO
BAND
AF 1
AF 2
C AF2
AF1
FM2
L5109 68µH :EL0606
R5151
R5152
IF
Q5113 BAND-SW
Q5112 BAND-SW
SF5102
JR5110
C5123 0.1 25V B:CHIP
C5128 470p CH:CHIP
TOP
RV5101 22k
C5152 2.2 50V
R5136 470 :CHIP
JR5114
C5125 0.22 16V B:CHIP
SYSTEM L
RV5102
SUB V
R5139 3.9k :CHIP
C5113
R5137 270 :CHIP
R5138 10k :CHIP
SUB AU
Q5121 SWITCH
C5127 22 50V
R5126
R5125
JR5107
D5103
R5131
CF5103
JR5113
C5111
R5129
D5102
R5124
R5123
<12V>
+12V
R5127
CF5101
R5128
CF5102
Q5107 BAND-SW
Q5106 BAND-SW
Q5105 BAND-SW
Q5104 BAND-SW
C5137
R5141
C5130 47 25V
R5142 15k :CHIP
R5143 39k :CHIP
R5144 2.2k :CHIP
C5129
R5140
Q5110 STD CONT
Q5111 STD CONT
R5145 6.8k :CHIP
Q5109 2SC2412K AU AMP
Q5108 2SC2412K AU AMP
R5146 2.2k :CHIP
C5131 0.1 25V B:CHIP
R5147 330 :CHIP
SUB AU
CN5152 7P BLK :S-MICRO
+33V
AGC MONI
ATT SW
GND
SUB VIDEO
GND
SUB AUDIO
TO A BOARD CN0152
R5122 10k :CHIP
R5120 100 :CHIP
R5121 1k :CHIP
SUB V
SUB AU
L5101 68µH :EL0606
C5110 0.01 B:CHIP
C5101 47 25V
SUB V
R5112
R5114 100 :CHIP
R5113 100 :CHIP
IC5102 CXA1875AM-T4 MODE CONTROL
Vcc
SCL
SDA1
SA2
SA1
SA0
SW3
SW2
SW1
SW0
DA4
DA3
DA2
DA1
DA0
GND
R5117
R5182
R5119
R5115
R5116
T (SIF/VIF)
L5107 100µH :EL0606
C5146 47 25V
C5145 0.01 B:CHIP
R5169 :CHIP
SUB V
R5161 :CHIP
L5105
C5139
R5158 1k :CHIP
Q5116 2SC2412K EQ
R5165
Q5115 2SA1037K EQ
R5163 330 :CHIP
+12V
JR5115
JR5105
IC5104 VIDEO SELECT
GND
VIDEO
Vcc
NC
V1
SW1
V2
NC
BG I, BK, L
SUB V
C5135 47 25V
SUB V
R5162
L5106
C5140
C5142
R5160
Q5118 EQ
Q5117 EQ
C5144
R5166
C5136
R5164
R5168
SUB V

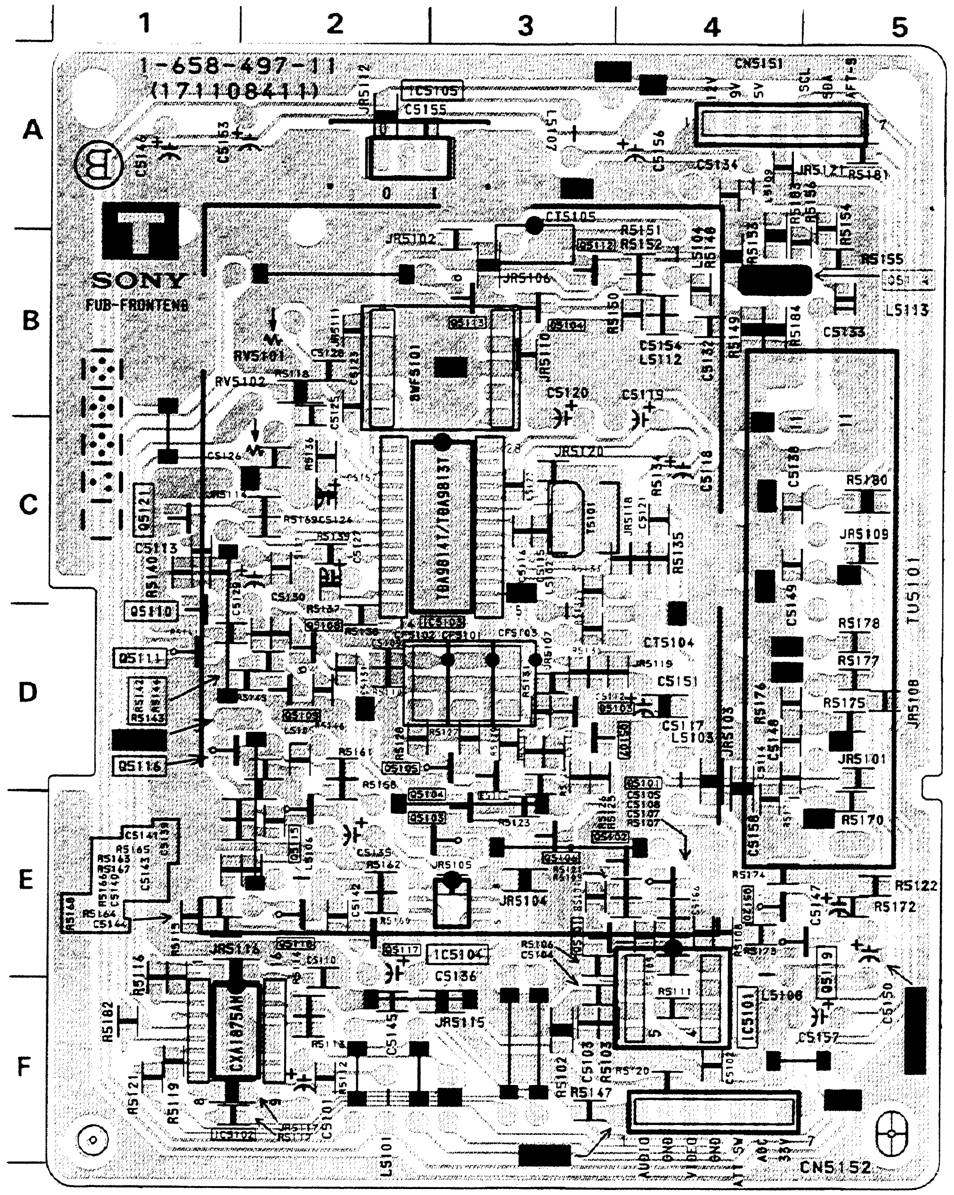
= TEST POINT

CONTROL~LOGIC OF SYSTEM
H:2.8~ 5.0<V>
L:0.0~ 0.8<V>
V:0.0 5.0<V>
: DON'T CARE (BUT PLEASE SET "L")

SYS	DA0	DA1	DA2	DA3	DA4	SW0	SW1	SW2	SW2
B/G	L/H	H	H	V	H	H	H	H	-
I	L/H	H	H	V	L	L	H	L	-
D/K	L/H	L	H	V	L	L	H	L	-
L	L/H	L	H	V	L	H	L	L	-
L'	L/H	L	L	V	L	L	L	L	-

T [SIF/VIF]

— T Board —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A
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F
1-658-497-11
(171108411)
SONY
FUB-FRONTEND
CN5151
CN5152
IC5101
IC5104
TBA9814T/TBA9813T
CXA1875AM
TU5101
RV5101
RV5102
L5113
L5101
L5103
L5112
T5101
CT5104
CT5105
AUDIO
GND
VIDEO
GND
5V
12V
9V
SCL
SDA
AFT-B

T BOARD

IC	
IC5102	F-1
IC5103	D-3
● IC5104	E-3

TRANSISTOR	
○ Q5104	E-3
○ Q5105	D-2
● Q5106	E-3
● Q5107	D-4
Q5108	D-2
Q5109	D-2
● Q5110	D-1
● Q5111	D-1
● Q5112	E-3
● Q5113	B-3
Q5114	B-5
Q5115	E-2
Q5116	D-1
● Q5117	E-2
● Q5118	E-2
● Q5121	C-1

DIODE	
○ D5102	D-3
● D5103	D-4
● D5104	B-3

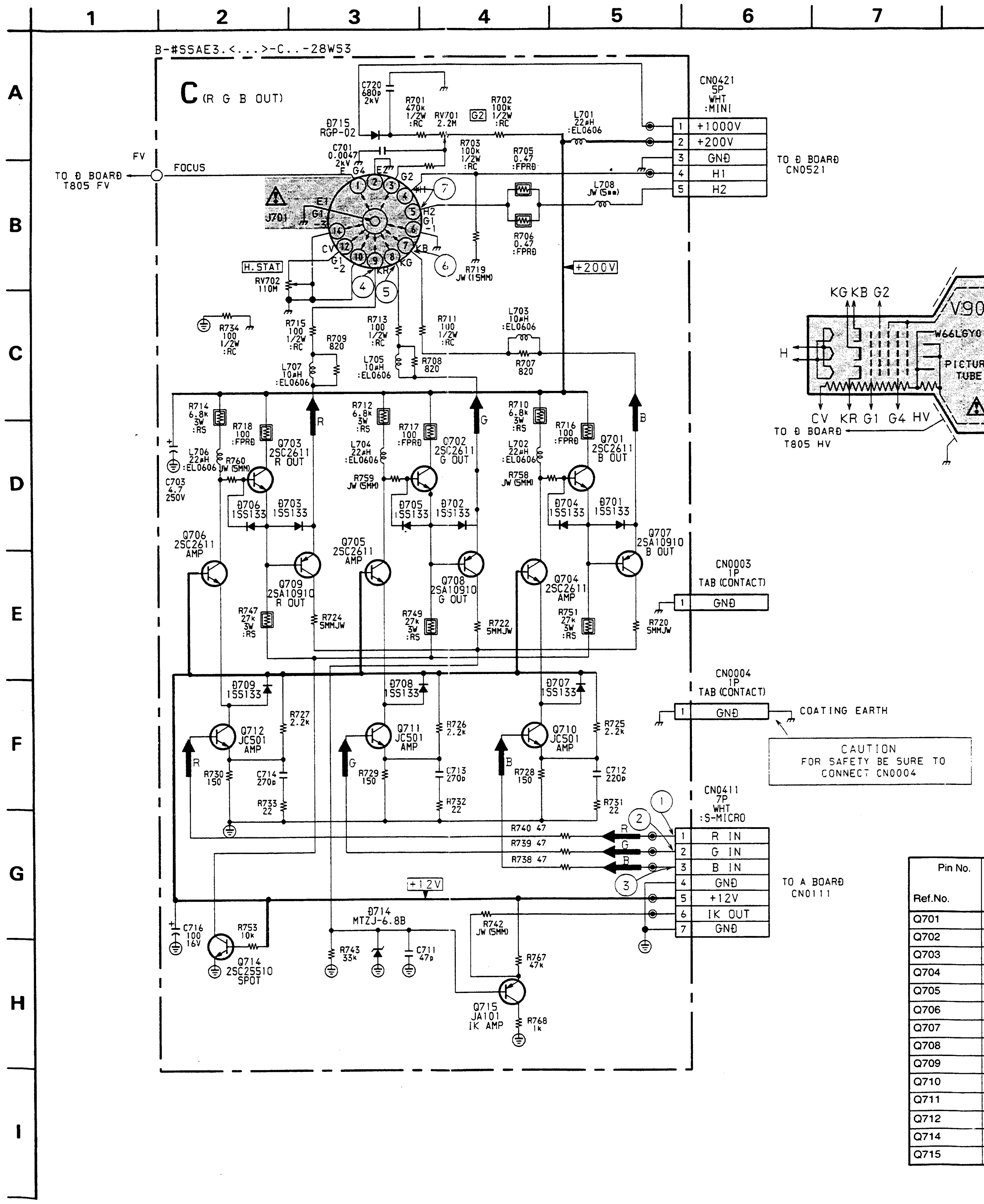
VARIABLE RESISTOR	
RV5101	B-2
● RV5102	B-2

○ mark : KV-28WS3A,3B,3D,3E and 3K only

● mark : KV-28WS3B only

Ref.No.	Pin No.	Voltage (V)
IC5101	1	2.0
	3	0.6
	4	5.0
	6	2.3
	7	5.0
	8	2.0
IC5102	1-2	2.7
	3-7	4.6
	9	2.7
	14	5.0
	15	4.0
	16	5.0
IC5103	1-2	3.2
	4	1.0
	5	2.0
	6	2.8
	8	2.1
	10	2.6
	13	2.1
	14	1.7
	15	2.6
	16	0.9
	17	2.0
	18-19	1.8
	20	3.3
	21-22	2.7
	27-28	3.2

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q5101	4.3	4.8	5.0
Q5102	4.8	0	0
Q5103	0	2.7	0
Q5104	4.5	0	0
Q5105	0	6.2	0
Q5108	4.6	12.0	4.0
Q5109	0.6	4.6	0
Q5114	3.8	10.2	3.0
Q5115	1.5	2.1	2.0
Q5116	2.1	12.0	1.4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A
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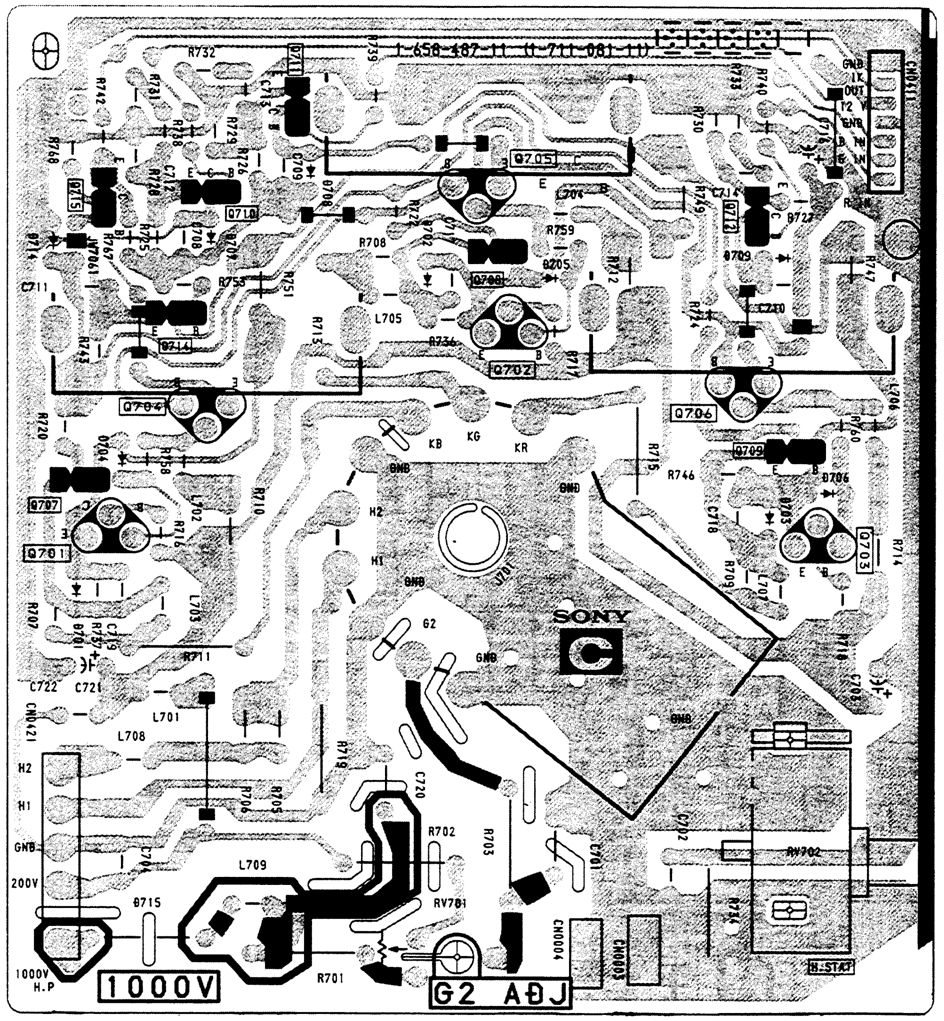
C
D
E
F
G
H
I
B-#SSAE3.<...>-C..-28WS3
C (R G B OUT)
TO Ð BOARD T805 FV
FV
FOCUS
J701
C720 680p 2kV
Ð715 RGP-02
R701 470k 1/2W :RC
RV701 2.2M
G2
R702 100k 1/2W :RC
C701 0.0047 2kV
R703 100k 1/2W :RC
R705 0.47 :FPRÐ
R706 0.47 :FPRÐ
L701 22μH :EL0606
L708 JW (5mm)
R719 JW (15MM)
+200V
E G4 E2 G2 H1 H2 E1 G1 -3 G1 -1 CV G1 -2 KR KG KB
H.STAT
RV702 110M
R734 100 1/2W :RC
R715 100 1/2W :RC
R709 820
L707 10μH :EL0606
R713 100 1/2W :RC
L705 10μH :EL0606
R708 820
R711 100 1/2W :RC
L703 10μH :EL0606
R707 820
CN0421 5P WHT :MINI
1 +1000V
2 +200V
3 GNÐ
4 H1
5 H2
TO Ð BOARD CN0521
R714 6.8k 3W :RS
R718 100 :FPRÐ
L706 22μH :EL0606
R760 JW (5MM)
C703 4.7 250V
Q703 2SC2611 R OUT
Ð706 1SS133
Ð703 1SS133
R712 6.8k 3W :RS
R717 100 :FPRÐ
L704 22μH :EL0606
R759 JW (5MM)
Q702 2SC2611 G OUT
Ð705 1SS133
Ð702 1SS133
R710 6.8k 3W :RS
R716 100 :FPRÐ
L702 22μH :EL0606
R758 JW (5MM)
Q701 2SC2611 B OUT
Ð704 1SS133
Ð701 1SS133
R
G
B
Q706 2SC2611 AMP
Q709 2SA10910 R OUT
Q705 2SC2611 AMP
Q708 2SA10910 G OUT
Q704 2SC2611 AMP
Q707 2SA10910 B OUT
R747 27k 3W :RS
R724 5MMJW
R749 27k 3W :RS
R722 5MMJW
R751 27k 3W :RS
R720 5MMJW
CN0003 1P TAB (CONTACT)
1 GNÐ
CN0004 1P TAB (CONTACT)
1 GNÐ
COATING EARTH
CAUTION FOR SAFETY BE SURE TO CONNECT CN0004
Ð709 1SS133
R727 2.2k
Q712 JC501 AMP
R730 150
C714 270p
R733 22
Ð708 1SS133
R726 2.2k
Q711 JC501 AMP
R729 150
C713 270p
R732 22
Ð707 1SS133
R725 2.2k
Q710 JC501 AMP
R728 150
C712 220p
R731 22
R740 47
R739 47
R738 47
CN0411 7P WHT :S-MICRO
1 R IN
2 G IN
3 B IN
4 GNÐ
5 +12V
6 IK OUT
7 GNÐ
TO A BOARD CN0111
+12V
C716 100 16V
R753 10k
Q714 2SC2551O SPOT
Ð714 MTZJ-6.8B
R743 33k
C711 47p
R742 JW (5MM)
R767 47k
Q715 JA101 IK AMP
R768 1k
①
②
③
④
⑤
⑥
⑦
KG KB G2
H
V901
W66LGY010X
PICTURE TUBE
CV KR G1 G4 HV
TO Ð BOARD T805 HV

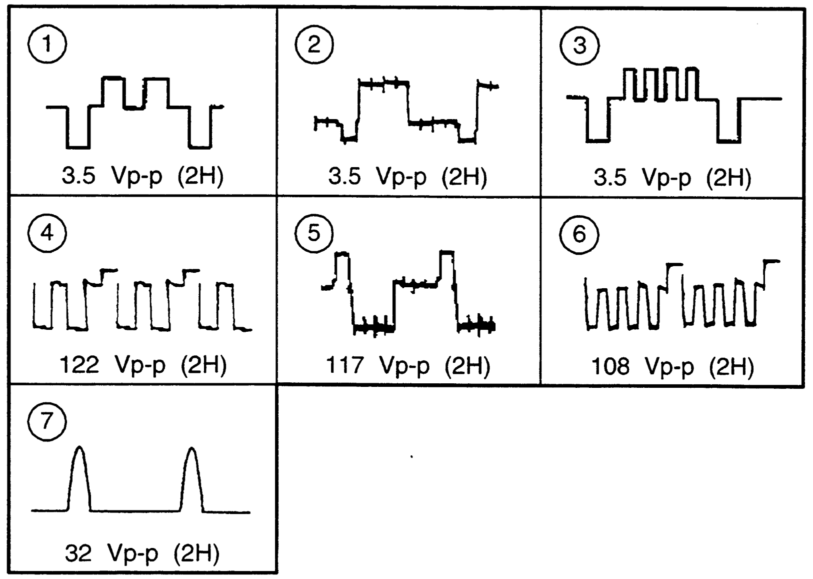
Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q701	155	204	159
Q702	146	204	151
Q703	156	203	156
Q704	12.0	155	11.5
Q705	12.0	144	11.5
Q706	12.0	151	11.5
Q707	158	5.5	176
Q708	151	5.3	173
Q709	156	5.5	168
Q710	2.1	11.4	1.7
Q711	2.2	11.4	1.8
Q712	2.1	11.4	1.7
Q714	0.7	0.1	0
Q715	5.5	0.1	3.2

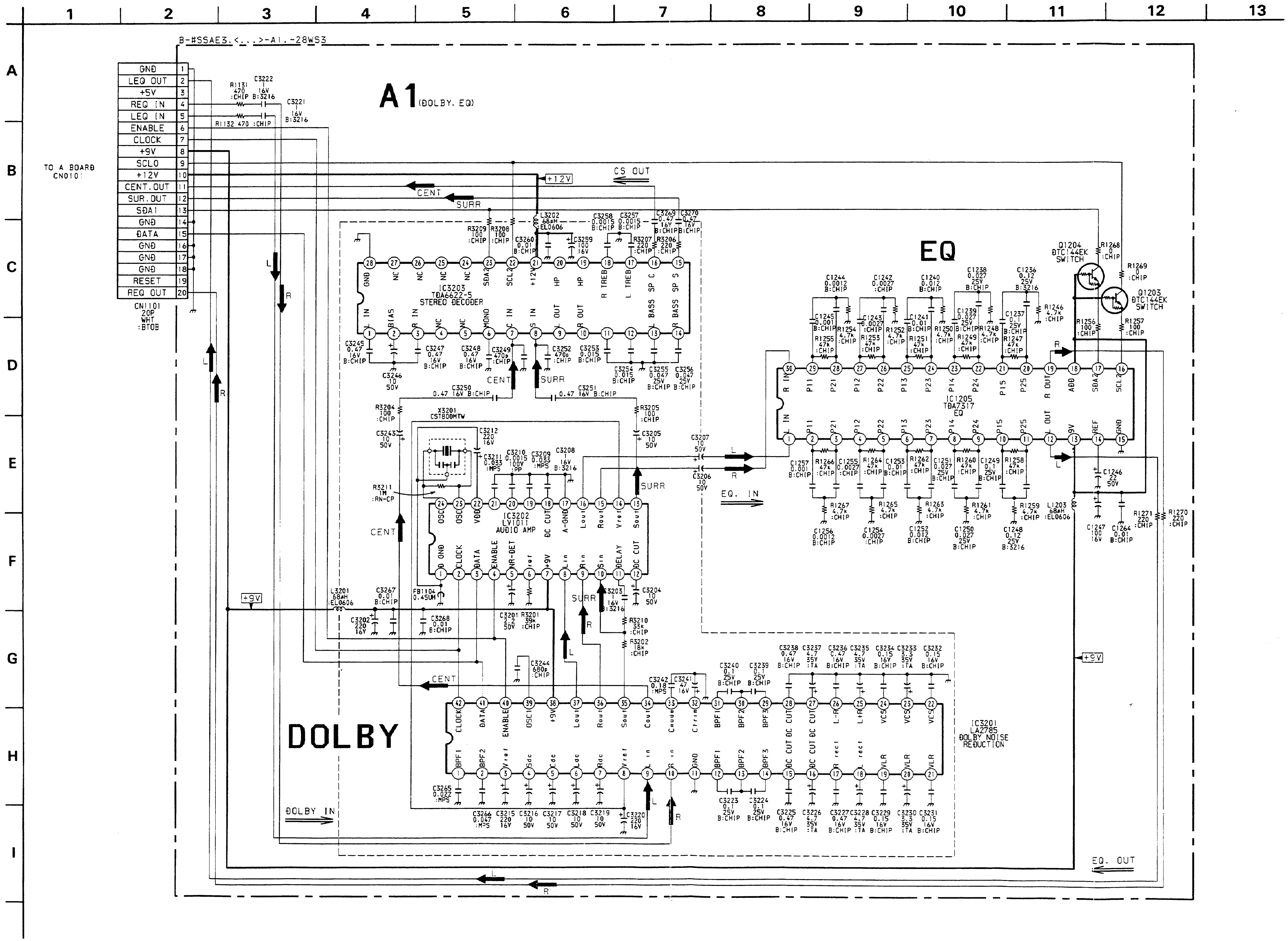
C [RGB OUT]

— C Board —


1-658-487-11 (1-711-081-11)
CN0421
GND
1K OUT
12 V
GND
B IN
G IN
R IN
Q705
Q715
Q710
Q711
Q712
Q708
Q704
Q702
Q706
Q709
Q707
Q701
Q703
Q714
L705
L701
L708
L709
R702
R703
R701
RV701
RV702
H.STAT
SONY
C
KB
KG
KR
GND
G2
H1
H2
200V
1000V H.P
D715
CN0004
CN0003
C722
C721
1000V
G2 ADJ

WAVEFORMS C BOARD




B-#SSAE3.<...>-A1.-28WS3
A1 (DOLBY, EQ)
TO A BOARD CN010
GND
LEQ OUT
+5V
REQ IN
LEQ IN
ENABLE
CLOCK
+9V
SCLO
+12V
CENT.OUT
SUR.OUT
SDA1
GND
DATA
GND
GND
GND
RESET
REQ OUT
CN1101 20P WHT :BTOB
+12V
CS OUT
CENT
SURR
IC3203 TDA6622-5 STEREO DECODER
IC3202 LV1011 AUDIO AMP
X3201 CST800MTW
EQ
IC1205 TDA7317 EQ
Q1204 DTC144EK SWITCH
Q1203 DTC144EK SWITCH
EQ. IN
EQ. OUT
+9V
DOLBY
DOLBY IN
IC3201 LA2785 DOLBY NOISE REDUCTION
L
R
1
2
3
4
5
6
7
8
9
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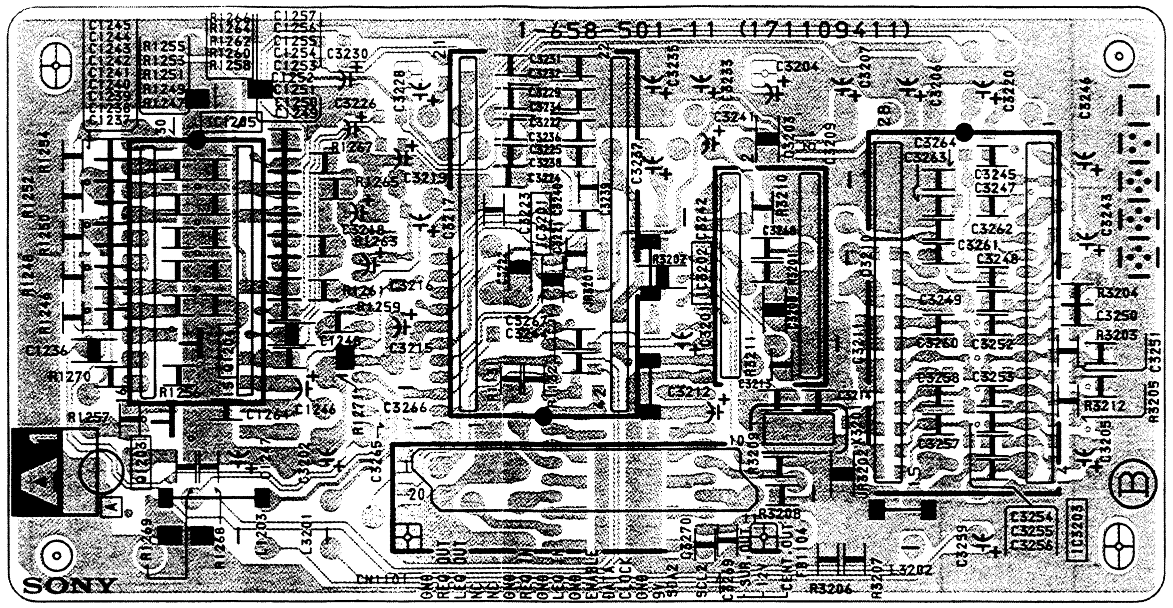
11
12
13
A
B
C
D
E
F
G
H
I

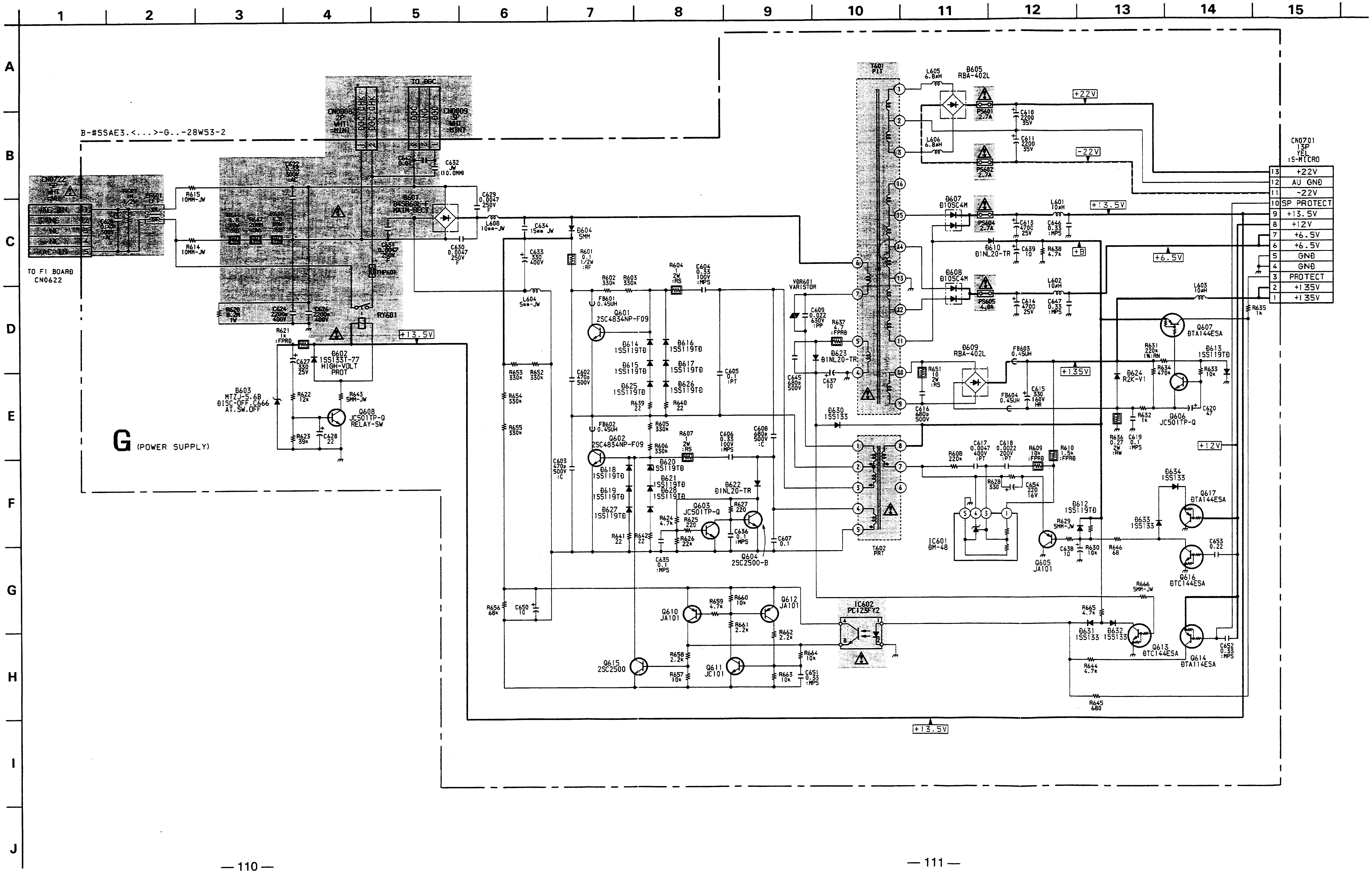
A1 [DOLBY,EQ]

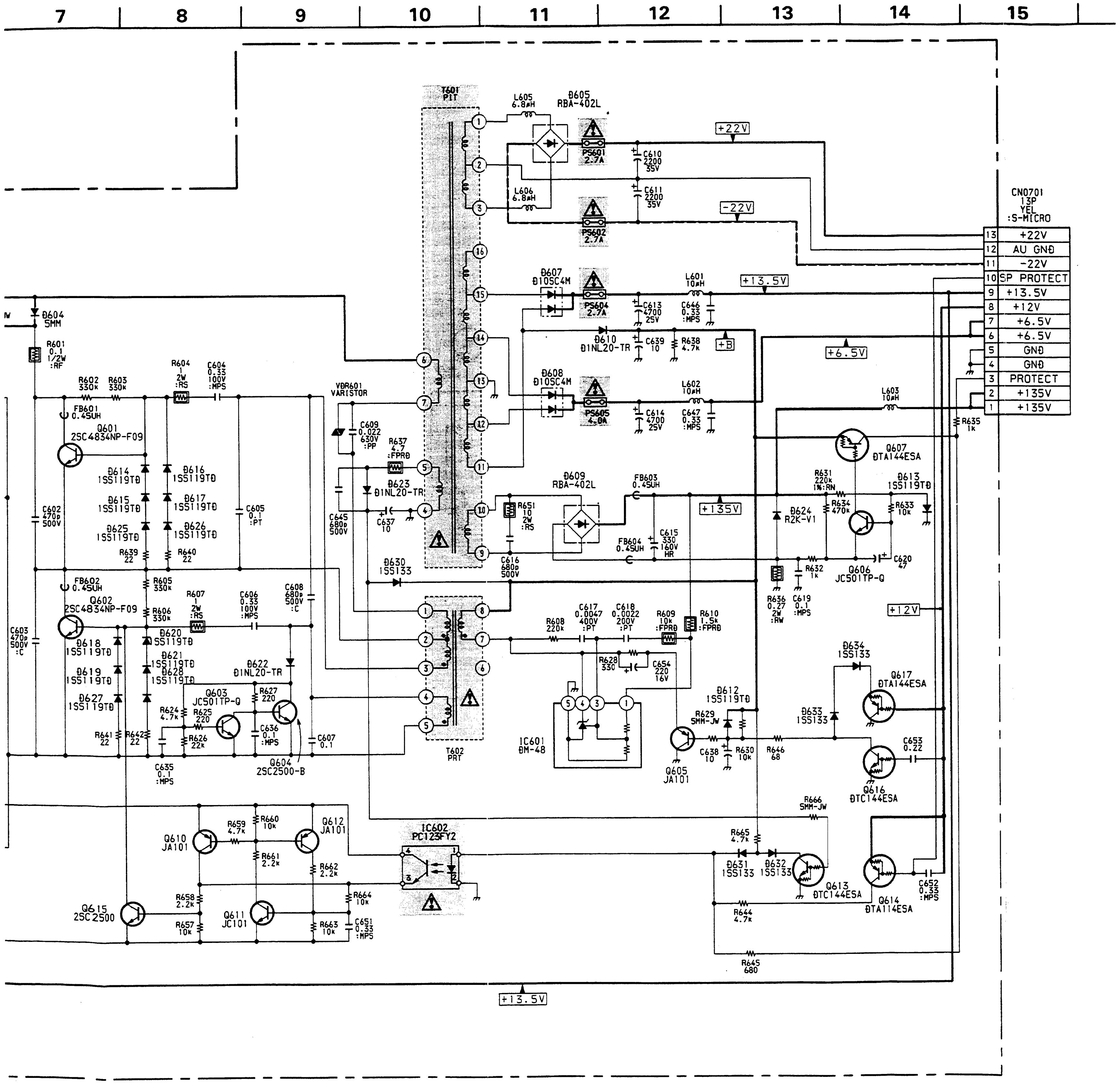
— A1 Board —


1-658-501-11 (171109411)
SONY
A1
B
IC3203
CN1101
R3206
C3202
C3204

Ref.No.	Pin No.	Voltage (V)
IC3201	1-10	4.4
	12-15	4.4
	16	5.1
	17	4.4
	18	5.1
	19-21	4.4
	22-24	2.3
	25	5.2
	26	4.3
	27	5.0
	28-37	4.3
	38	8.6
	40	4.8
	41	4.0
	42	5.0
IC3202	2	5.0
	3	4.0
	4	5.0
	5	3.1
	6	0.7
	7	8.6
	8-16	4.3
	18-21	4.3
	22	4.7
	23-24	2.3
IC3203	1-3	6.0
	6-8	6.0
	11-14	6.0
	15-16	5.3
	17-18	6.0
	21	12.0
	22	4.0
	23	5.0
IC1205	1-12	4.4
	13	8.8
	14	4.4
	16	4.0
	17	5.0
	18	8.8
	19-30	4.4

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q1203	8.8	4.0	4.0
Q1204	8.8	5.0	5.0

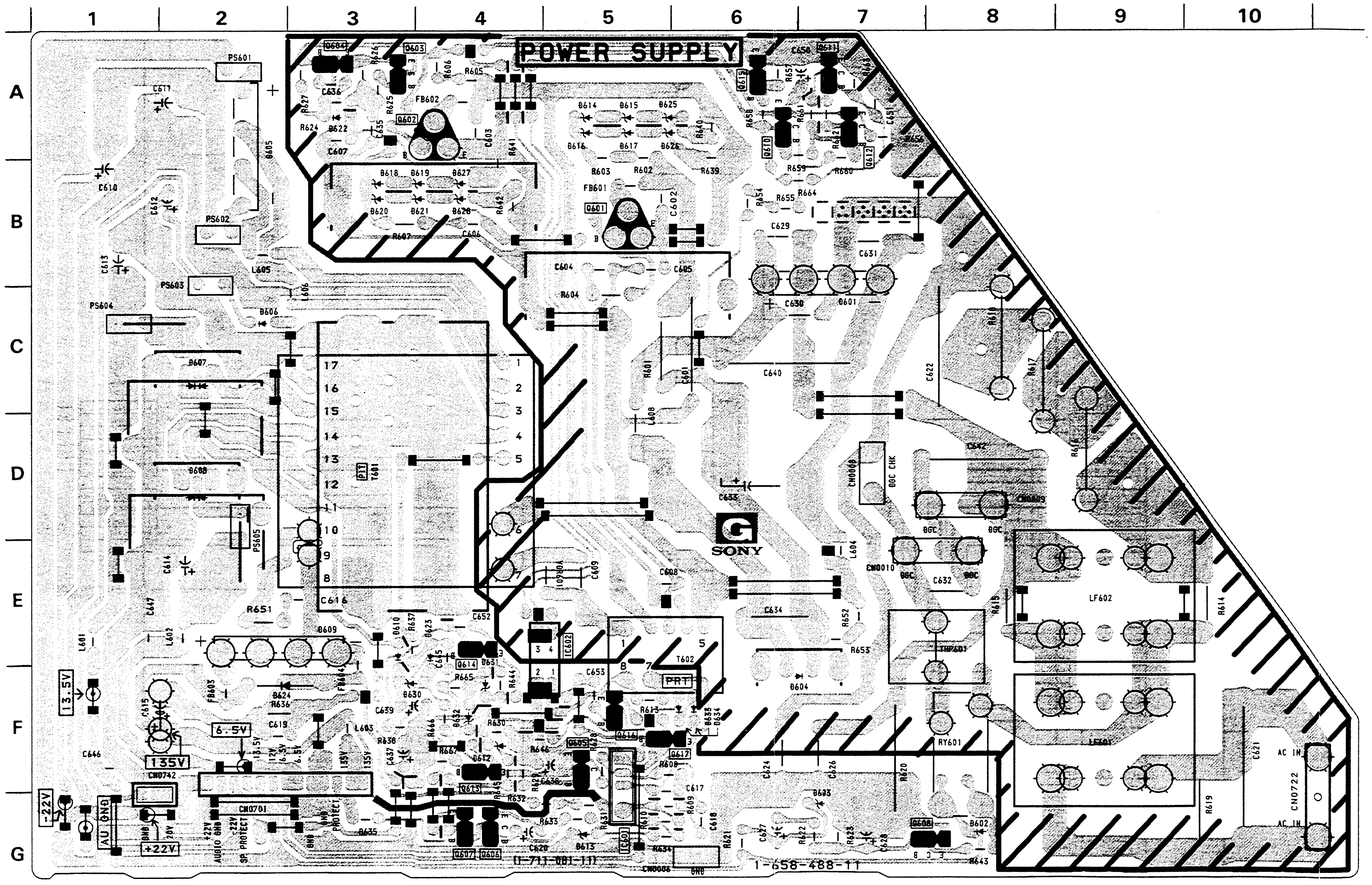

G (POWER SUPPLY)
B-#SSAE3.<...>-G..-28WS3-2
TO F1 BOARD CN0622
CN0722
TO DGC
CN0008
CN0009
D601 D4SB60L-F MAIN RECT
RY601
THP601
D602 1SS133T-77 HIGH-VOLT PROT
D603 MTZJ-5.6B DISC-OFF C666 AT.SW.OFF
Q608 JC501TP-Q RELAY-SW
Q601 2SC4834NP-F09
Q602 2SC4834NP-F09
Q603 JC501TP-Q
Q604 2SC2500-B
D604 5MM
VBR601 VARISTOR
T601 PIT
T602 PRT
D605 RBA-402L
D607 D10SC4M
D608 D10SC4M
D609 RBA-402L
D610 D1NL20-TR
D622 D1NL20-TR
D623 D1NL20-TR
IC601 BM-48
IC602 PC123FY2
Q605 JA101
Q606 JC501TP-Q
Q607 DTA144ESA
Q610 JA101
Q611 JC101
Q612 JA101
Q613 DTC144ESA
Q614 DTA114ESA
Q615 2SC2500
Q616 DTC144ESA
Q617 DTA144ESA
D624 RZK-V1
PS601 2.7A
PS602 2.7A
PS604 2.7A
PS605
+22V
-22V
+13.5V
+B
+6.5V
+135V
+12V
CN0701 13P YEL :S-MICRO
13 +22V
12 AU GND
11 -22V
10 SP PROTECT
9 +13.5V
8 +12V
7 +6.5V
6 +6.5V
5 GND
4 GND
3 PROTECT
2 +135V
1 +135V
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J


7
8
9
10
11
12
13
14
15
T601
PIT
L605
6.8µH
D605
RBA-402L
PS601
2.7A
C610
2200
35V
L606
6.8µH
C611
2200
35V
PS602
2.7A
+22V
-22V
D607
D10SC4M
PS604
2.7A
L601
10µH
+13.5V
C613
4700
25V
C646
0.33
:MPS
D610
D1NL20-TR
C639
10
R638
4.7k
+B
D608
D10SC4M
PS605
4.0A
L602
10µH
C614
4700
25V
C647
0.33
:MPS
+6.5V
L603
10µH
R635
1k
CN0701
13P
YEL
:S-MICRO
13 +22V
12 AU GND
11 -22V
10 SP PROTECT
9 +13.5V
8 +12V
7 +6.5V
6 +6.5V
5 GND
4 GND
3 PROTECT
2 +135V
1 +135V
D604
SMM
R601
0.1
1/2W
:RF
R602
330k
R603
330k
R604
1
2W
:RS
C604
0.33
100V
:MPS
VDR601
VARISTOR
C609
0.022
630V
:PP
R637
4.7
:FPRD
FB601
0.45UH
Q601
2SC4834NP-F09
D614
1SS119TD
D616
1SS119TD
D615
1SS119TD
D617
1SS119TD
D625
1SS119TD
D626
1SS119TD
C602
470p
500V
C605
0.1
:PT
R639
22
R640
22
D623
D1NL20-TR
C645
680p
500V
C637
10
D609
RBA-402L
FB603
0.45UH
R651
10
2W
:RS
+135V
C615
330
160V
HR
FB604
0.45UH
C616
680p
500V
Q607
DTA144ESA
R631
220k
1W:RN
D613
1SS119TD
D624
R2K-V1
R634
470k
R633
10k
Q606
JC501TP-Q
C620
47
R632
1k
R636
0.27
2W
:RW
C619
0.1
:MPS
+12V
D630
1SS133
FB602
0.45UH
R605
330k
R607
1
2W
:RS
C606
0.33
100V
:MPS
C608
680p
500V
:C
Q602
2SC4834NP-F09
R606
330k
C603
470p
500V
:C
D618
1SS119TD
D620
1SS119TD
D621
1SS119TD
D628
1SS119TD
D619
1SS119TD
D622
D1NL20-TR
D627
1SS119TD
Q603
JC501TP-Q
R627
220
R624
4.7k
R625
220
C636
0.1
:MPS
C607
0.1
R641
22
R642
22
R626
22k
C635
0.1
:MPS
Q604
2SC2500-B
T602
PRT
C617
0.0047
400V
:PT
C618
0.0022
200V
:PT
R608
220k
R609
10k
:FPRD
R610
1.5k
:FPRD
R628
330
C654
220
16V
IC601
BM-48
D634
1SS133
Q617
DTA144ESA
D612
1SS119TD
R629
SMM-JW
D633
1SS133
C653
0.22
Q605
JA101
C638
10
R630
10k
R646
68
Q616
DTC144ESA
Q610
JA101
R659
4.7k
R660
10k
Q612
JA101
R661
2.2k
R662
2.2k
IC602
PC123FY2
R666
SMM-JW
R665
4.7k
D631
1SS133
D632
1SS133
Q613
DTC144ESA
Q614
DTA114ESA
C652
0.33
:MPS
R644
4.7k
R645
680
Q615
2SC2500
R658
2.2k
R657
10k
Q611
JC101
R664
10k
R663
10k
C651
0.33
:MPS

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q601	-1.3	84.5	-0.1
Q602	-86	-0.1	-85
Q603	-84.5	-84.8	-85
Q604	-85.0	-84.3	-85
Q605	13.3	0	10.7
Q606	0.4	13.2	0.2
Q607	13.2	0	13.2
Q608	0	13.5	-0.1
Q610	5.6	1.8	28.0
Q611	-0.8	22.6	-84.0
Q613	9.2	-0.1	0
Q614	13.2	0.4	13.2
Q615	-85.2	-85.0	-84.0
Q616	-0.1	13.3	-0.1

G [POWER SUPPLY]

— G Board —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A
B
C
D
E
F
G
POWER SUPPLY
PS601
PS602
PS603
PS604
PS605
IC601
IC602
T602
PRT
LF602
RY601
THP601
CN0722
AC IN
CN0701
CN0742
13.5V
135V
6.5V
-22V
+22V
AU GND
SONY
1-658-488-11
1-711-081-11

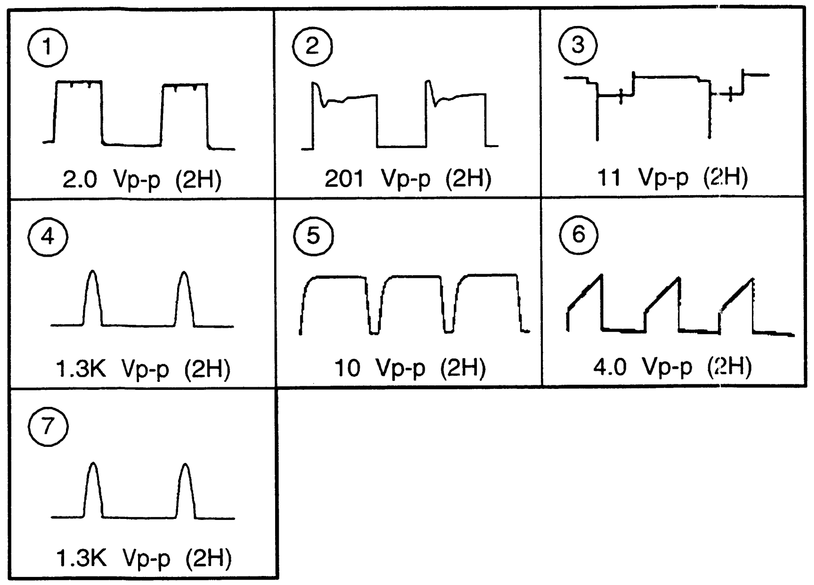
G BOARD

IC	
IC601	G-5
IC602	E-5

TRANSISTOR	
Q601	B-5
Q602	A-3
Q603	A-3
Q604	A-3
Q605	F-5
Q606	G-4
Q607	G-4
Q608	G-7
Q610	A-6
Q611	A-7
Q612	A-7
Q613	F-4
Q614	E-4
Q615	A-6
Q616	F-5
Q617	F-6

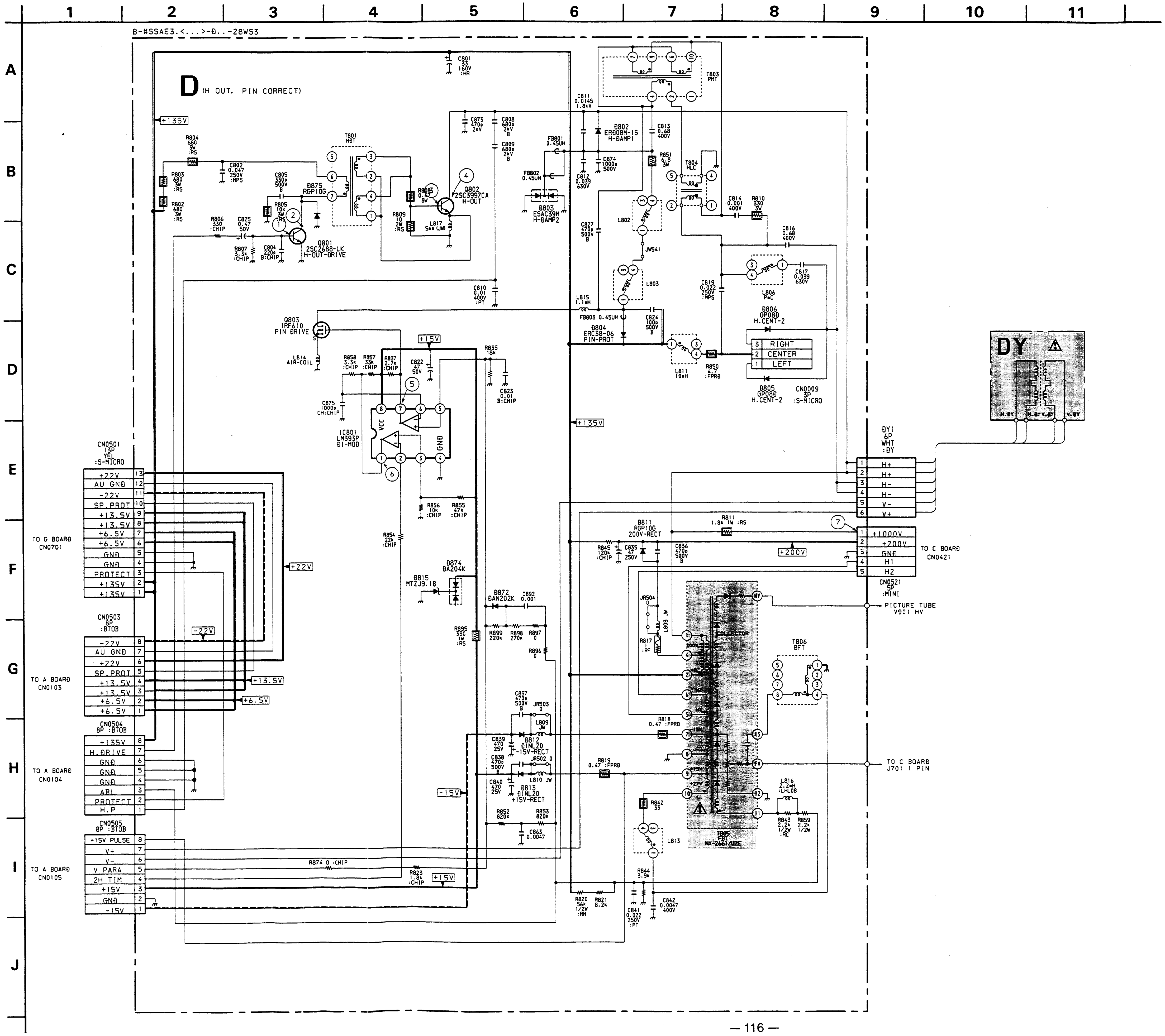
DIODE	
D601	C-7
D602	G-8
D603	F-7
D605	A-2
D607	C-2
D608	D-2
D609	E-3
D610	E-3
D612	F-4
D613	G-5
D614	A-5
D615	A-5
D616	A-5
D617	A-5
D618	B-3
D619	B-4
D620	B-3
D621	B-4
D622	A-3
D623	E-4
D624	F-2
D625	A-5
D626	A-5
D627	B-4
D628	B-4
D630	F-3
D631	E-4
D633	F-6

WAVEFORMS D BOARD



Ref.No.	Pin No.	Voltage (V)
IC801	1	1.2
	2	1.8
	3	1.6
	5	2.6
	6	1.2
	7	7.5
	8	9.5

Pin No. Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q801	-0.5	109	0
Q803	7.5	23.5	0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9
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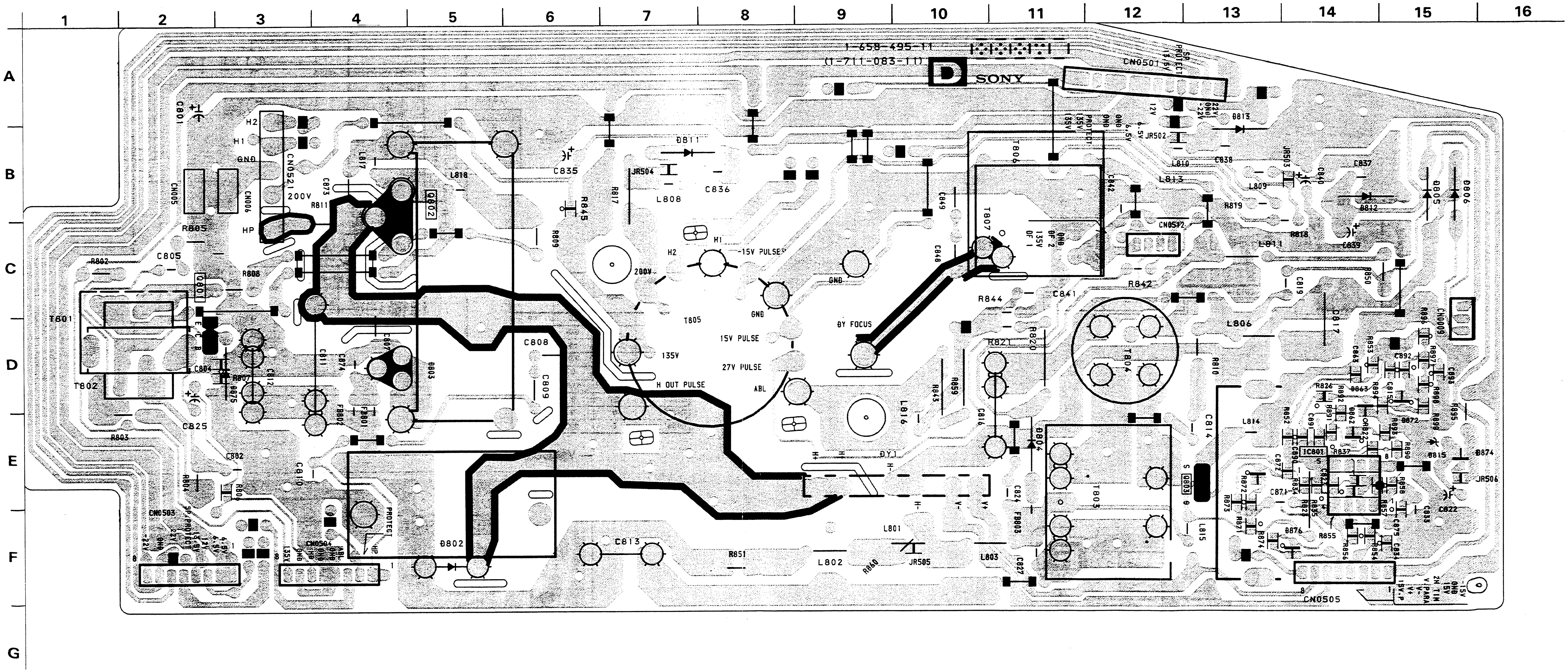
11
A
B
C
D
E
F
G
H
I
J
B-#SSAE3.<...>-D..-28WS3
D (H OUT. PIN CORRECT)
+135V
T801 HDT
Q801 2SC2688-LK H-OUT-DRIVE
Q802 2SC3997CA H-OUT
D875 RGP10G
T803 PHT
D802 ERB08H-15 H-DAMP1
D803 ESAC39M H-DAMP2
T804 HLC
L802
L803
L806 PAC
D806 GP08D H.CENT-2
D805 GP08D H.CENT-2
CN0009 3P :S-MICRO
3 RIGHT
2 CENTER
1 LEFT
D804 ERC38-06 PIN-PROT
Q803 IRF610 PIN DRIVE
L814 AIR-COIL
IC801 LM393P DI-MOD
VCC
GND
+15V
D874 DA204K
D815 MTZJ9.1B
D872 DAN202K
D811 RGP10G 200V-RECT
+200V
D812 D1NL20 -15V-RECT
D813 D1NL20 +15V-RECT
-15V
+22V
-22V
+13.5V
+6.5V
DY
H.DY
H.DY
V.DY
V.DY
DY1 6P WHT :DY
H+
H+
H-
H-
V-
V+
+1000V
+200V
GND
H1
H2
TO C BOARD CN0421
CN0521 5P :MINI
PICTURE TUBE V901 HV
T806 DFT
T805 FBT NX-2461/U2E
COLLECTOR
TO C BOARD J701 1 PIN
L813
L816 2.2mH :LHL08
CN0501 13P YEL :S-MICRO
+22V
AU GND
-22V
SP.PROT
+13.5V
+13.5V
+6.5V
+6.5V
GND
GND
PROTECT
+135V
+135V
TO G BOARD CN0701
CN0503 8P :BTOB
-22V
AU GND
+22V
SP.PROT
+13.5V
+13.5V
+6.5V
+6.5V
TO A BOARD CN0103
CN0504 8P :BTOB
+135V
H.DRIVE
GND
GND
GND
ABL
PROTECT
H.P
TO A BOARD CN0104
CN0505 8P :BTOB
+15V PULSE
V+
V-
V PARA
2H TIM
+15V
GND
-15V
TO A BOARD CN0105

D [H OUT, PIN CORRECT]

— D Board —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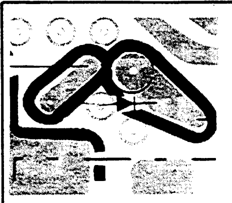
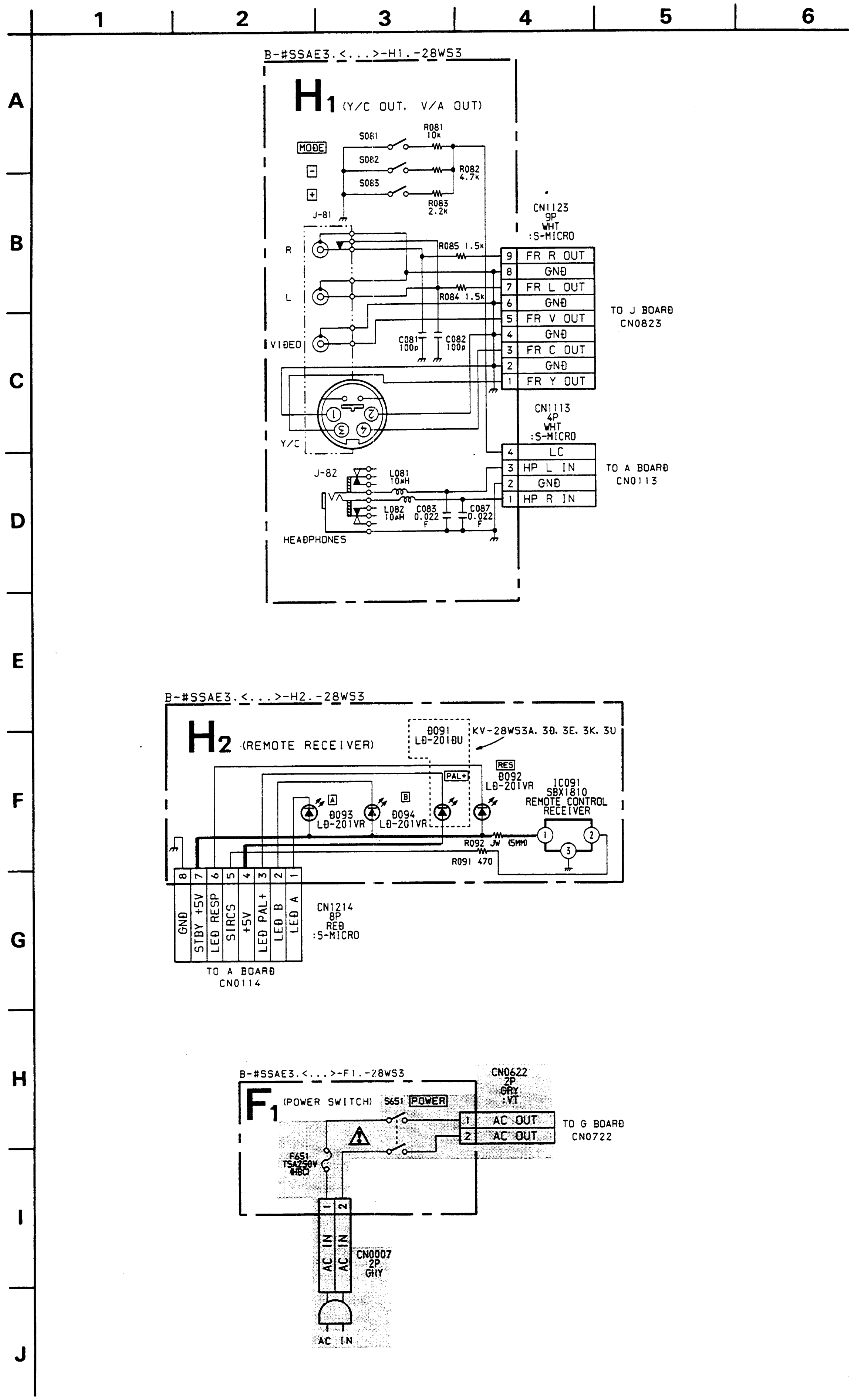
12
13
14
15
16
A
B
C
D
E
F
G
1-658-495-11
(1-711-083-11)
SONY
CN0501
C801
H2
H1
GND
CN0521
CN005
CN006
200V
R811
HP
L817
L818
C873
Q802
R805
R802
C805
R808
Q801
T801
T802
C804
R807
R875
C812
C811
C874
C807
D803
FB802
FB801
C825
R803
C802
R804
R806
C810
CN0503
CN0504
PROTECT
HP
D802
C835
R845
R817
JR504
L808
D811
C836
R809
C808
C809
H2
H1
-15V PULSE
200V
GND
T805
GND
15V PULSE
135V
27V PULSE
H OUT PULSE
ABL
DY FOCUS
C813
R851
L802
R860
JR505
L801
L816
R843
R859
C816
DY1
H+
H-
V-
V+
C849
C848
T806
T807
C842
R844
C841
R821
R820
D804
C824
FB803
L803
C827
T803
T804
R842
JR502
L810
C838
L813
CN0542
R819
D813
JR503
C840
C837
D812
D805
D806
L809
R818
L811
C839
C819
R850
L806
D817
R810
C814
L814
D803
L815
CN0009
IC801
R837
C871
C872
C890
R852
R826
R891
R892
R863
R862
R894
C815
R893
R897
C892
C893
R895
R899
R890
C891
R872
R873
R871
R874
R876
R855
R856
R854
C875
C833
C822
R896
D815
D874
JR506
CN0505
135V
GND
12V
6.5V
-22V
22V
PROTECT
135V
DF 1
DF 2
GND
15V
2H TIM
V.PARA
15V.P
-15V



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

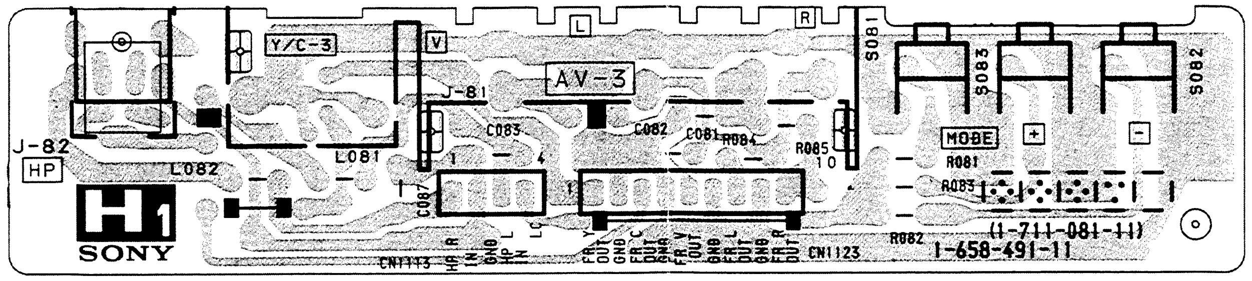
D BOARD

IC	
IC801	E-14
TRANSISTOR	
Q801	C-2
Q802	B-5
Q803	E-13
DIODE	
D802	F-5
D803	D-5
D804	E-11
D805	B-15
D806	B-15
D811	B-7
D812	B-14
D813	A-13
D815	E-15
D872	E-15
D874	E-15

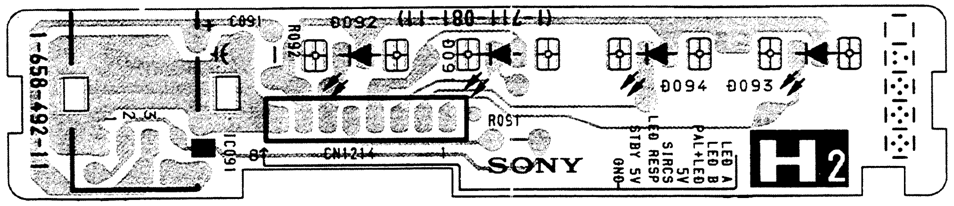

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
B-#SSAE3.<...>-H1.-28WS3
H1 (Y/C OUT. V/A OUT)
MODE
−
+
S081
S082
S083
R081 10k
R082 4.7k
R083 2.2k
J-81
R
L
VIDEO
Y/C
R085 1.5k
R084 1.5k
C081 100p
C082 100p
CN1123 9P WHT :S-MICRO
9 FR R OUT
8 GND
7 FR L OUT
6 GND
5 FR V OUT
4 GND
3 FR C OUT
2 GND
1 FR Y OUT
TO J BOARD CN0823
CN1113 4P WHT :S-MICRO
4 LC
3 HP L IN
2 GND
1 HP R IN
TO A BOARD CN0113
J-82
L081 10μH
L082 10μH
C083 0.022 F
C087 0.022 F
HEADPHONES
B-#SSAE3.<...>-H2.-28WS3
H2 (REMOTE RECEIVER)
D091 LD-201DU
KV-28WS3A. 3D. 3E. 3K. 3U
PAL+
RES
D092 LD-201VR
IC091 SBX1810 REMOTE CONTROL RECEIVER
A
B
D093 LD-201VR
D094 LD-201VR
R092 JW (5MM)
R091 470
8 GND
7 STBY +5V
6 LED RESP
5 SIRCS
4 +5V
3 LED PAL+
2 LED B
1 LED A
CN1214 8P RED :S-MICRO
TO A BOARD CN0114
B-#SSAE3.<...>-F1.-28WS3
F1 (POWER SWITCH)
S651 POWER
CN0622 2P GRY :VT
1 AC OUT
2 AC OUT
TO G BOARD CN0722
F651 T5A250V (HBC)
1 AC IN
2 AC IN
CN0007 2P GRY
AC IN

H1 [Y/C OUT, V/A OUT] **H2** [REMOTE RECEIVER] **F1** [POWER SWITCH] **VM** [VM AMP, QP]

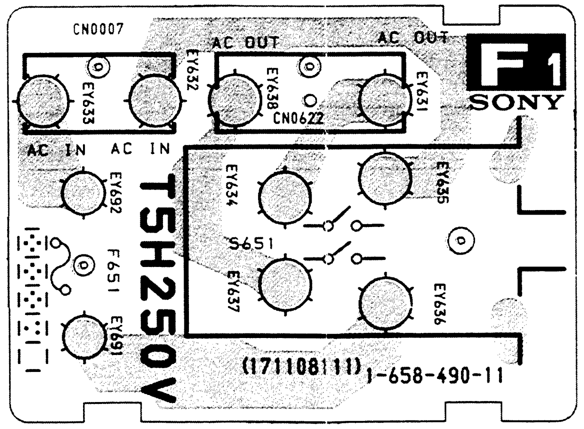
— H1 Board —

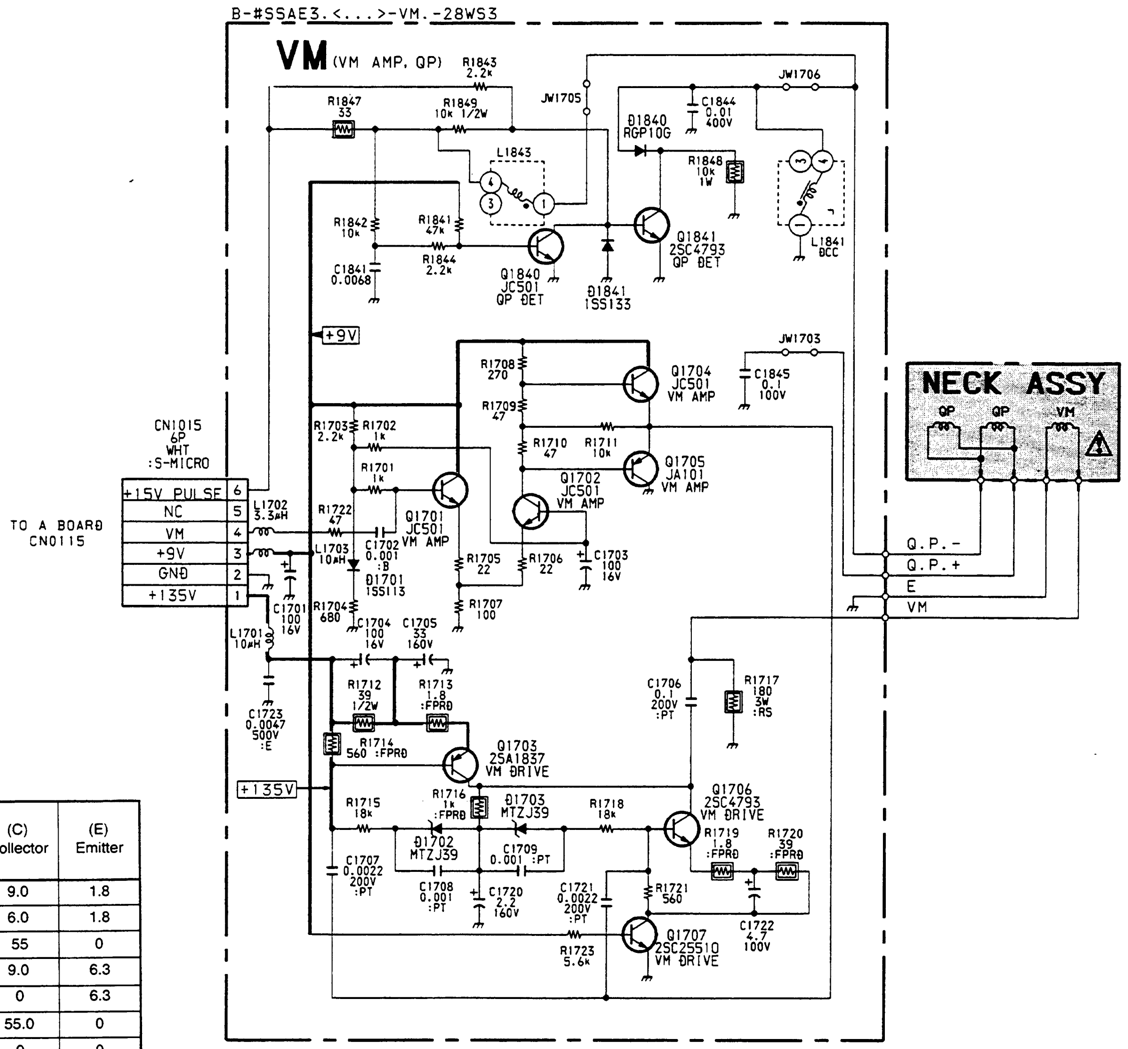

Y/C-3
V
L
R
AV-3
J-81
J-82
HP
L082
L081
C083
C082
C081
R084
R085
C087
S081
S083
S082
MODE
+
−
R081
R083
R082
CN1113
CN1123
H1
SONY
(1-711-081-11)
1-658-491-11

— H2 Board —


C091
R092
D092
(1-711-081-11)
D091
D094
D093
1-658-492-11
IC091
CN1214
RC
RSET
LED A
PAL LED
5V
STIRCS
LED RESP
STBY 5V
GND
SONY
H2

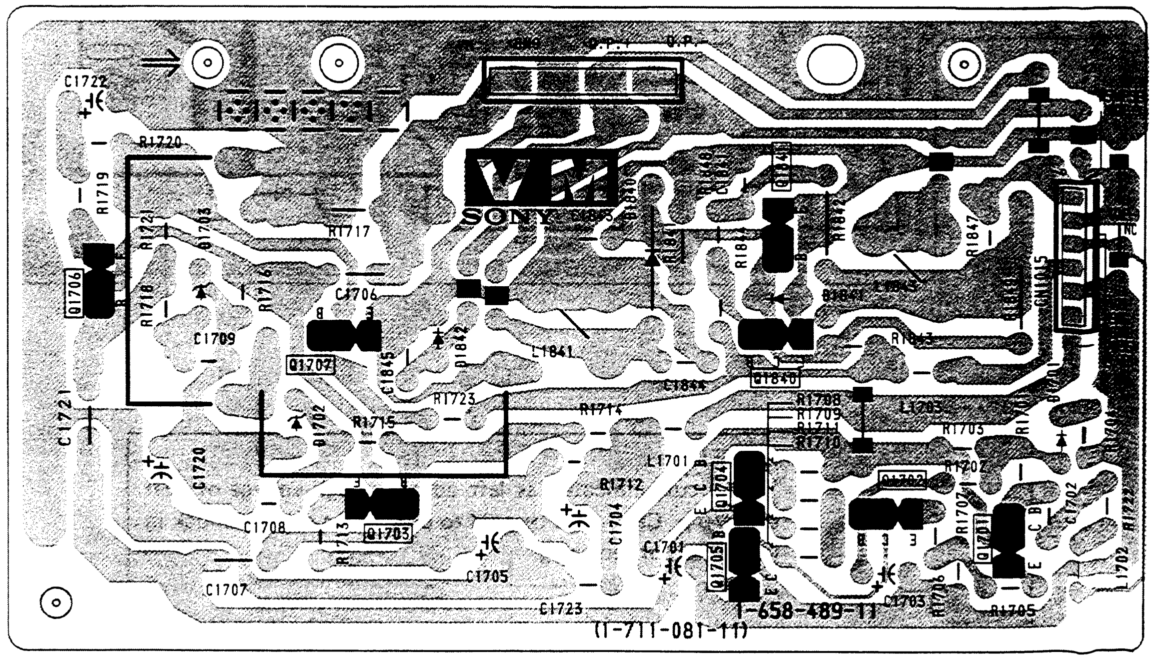
— F1 Board —


CN0007
AC OUT
AC OUT
EY632
EY633
EY638
EY631
CN0622
F1
SONY
AC IN
AC IN
EY692
EY634
EY635
S651
F651
EY637
EY636
EY691
T5H250V
(171108111)
1-658-490-11

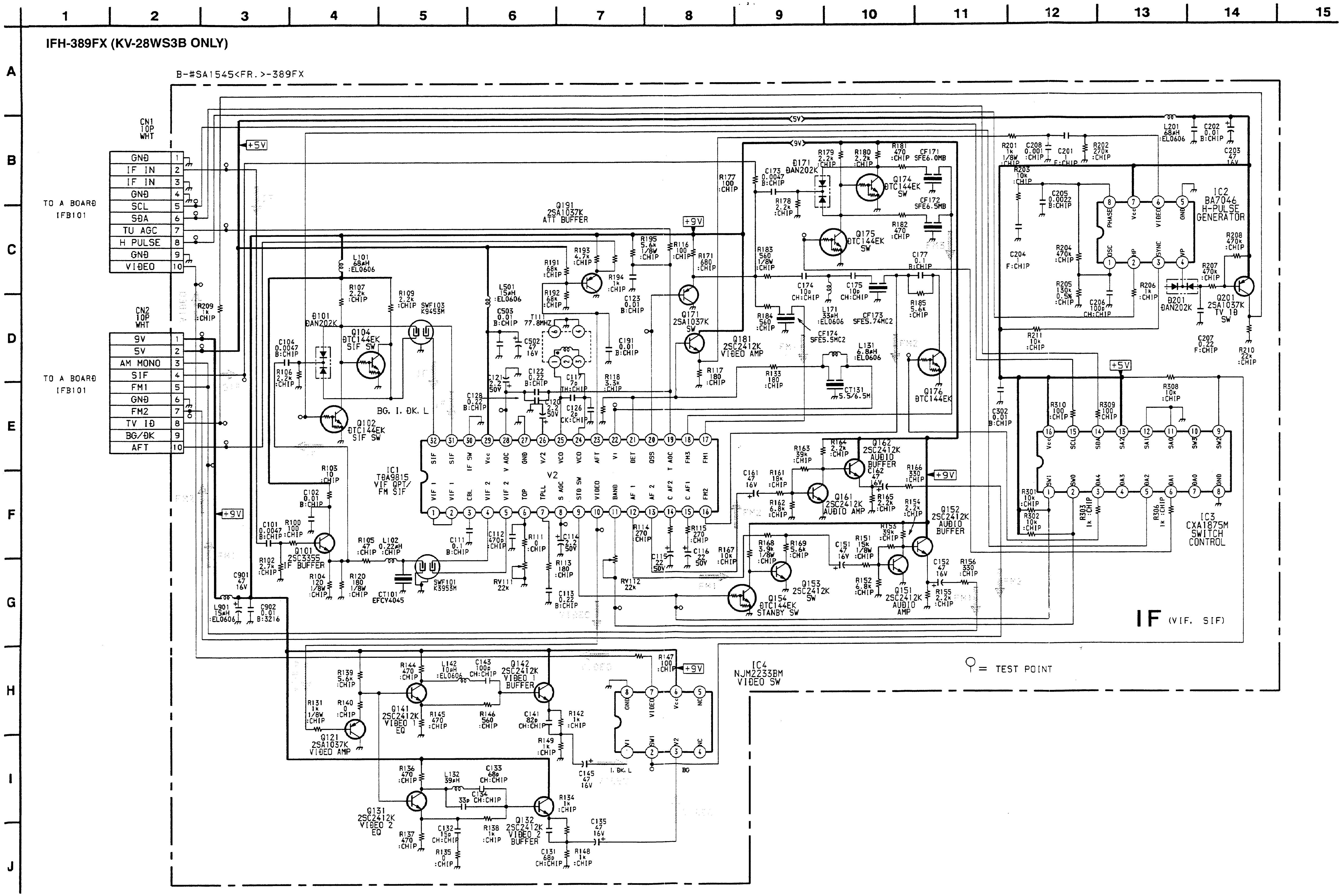

B-#SSAE3.<...>-VM.-28WS3
VM (VM AMP, QP)
R1843 2.2k
R1847 33
R1849 10k 1/2W
JW1705
L1843
D1840 RGP10G
C1844 0.01 400V
JW1706
R1848 10k 1W
R1842 10k
R1841 47k
C1841 0.0068
R1844 2.2k
Q1840 JC501 QP DET
D1841 1SS133
Q1841 2SC4793 QP DET
L1841 DCC
+9V
JW1703
R1708 270
Q1704 JC501 VM AMP
C1845 0.1 100V
R1709 47
NECK ASSY
QP
QP
VM
CN1015 6P WHT :S-MICRO
R1703 2.2k
R1702 1k
R1710 47
R1711 10k
Q1705 JA101 VM AMP
R1701 1k
Q1702 JC501 VM AMP
+15V PULSE 6
NC 5
VM 4
+9V 3
GND 2
+135V 1
TO A BOARD CN0115
L1702 3.3µH
R1722 47
Q1701 JC501 VM AMP
L1703 10µH
C1702 0.001 :B
D1701 1SS113
R1705 22
R1706 22
C1703 100 16V
C1701 100 16V
R1704 680
R1707 100
L1701 10µH
C1704 100 16V
C1705 33 160V
Q.P.−
Q.P.+
E
VM
C1723 0.0047 500V :E
R1712 39 1/2W
R1713 1.8 :FPRD
R1714 560 :FPRD
Q1703 2SA1837 VM DRIVE
C1706 0.1 200V :PT
R1717 180 3W :RS
+135V
R1715 18k
R1716 1k :FPRD
D1703 MTZJ39
R1718 18k
Q1706 2SC4793 VM DRIVE
D1702 MTZJ39
C1709 0.001 :PT
R1719 1.8 :FPRD
R1720 39 :FPRD
C1707 0.0022 200V :PT
C1708 0.001 :PT
C1720 2.2 160V
C1721 0.0022 200V :PT
R1721 560
C1722 4.7 100V
R1723 5.6k
Q1707 2SC2551O VM DRIVE

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q1701	2.5	9.0	1.8
Q1702	2.5	6.0	1.8
Q1703	135.0	55	0
Q1704	6.7	9.0	6.3
Q1705	6.0	0	6.3
Q1706	0.6	55.0	0
Q1707	0.7	0	0
Q1840	0	0	0
Q1841	0	0.2	0

— VM Board —

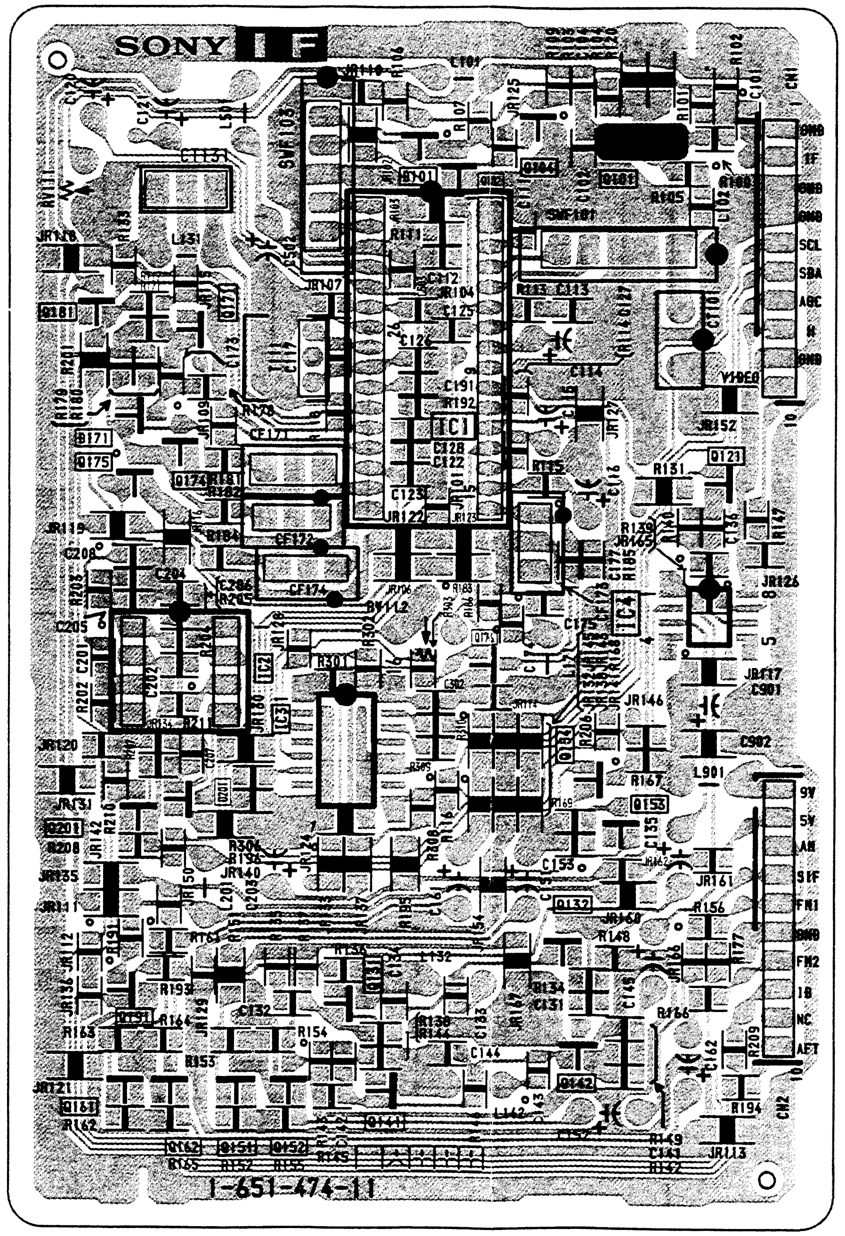

C1722
R1720
R1719
R1721
Q1706
R1718
R1716
C1706
R1717
C1709
Q1702
VM
SONY
L1841
R1847
CN1015
Q1840
R1723
R1714
R1715
C1721
C1720
R1712
L1701
C1708
R1713
Q1703
C1705
C1704
C1701
Q1704
Q1705
R1708
R1709
R1711
R1710
R1703
R1702
Q1701
C1707
C1723
C1703
R1705
1-658-489-11
(1-711-081-11)

IFH-389FX (KV-28WS3B ONLY)

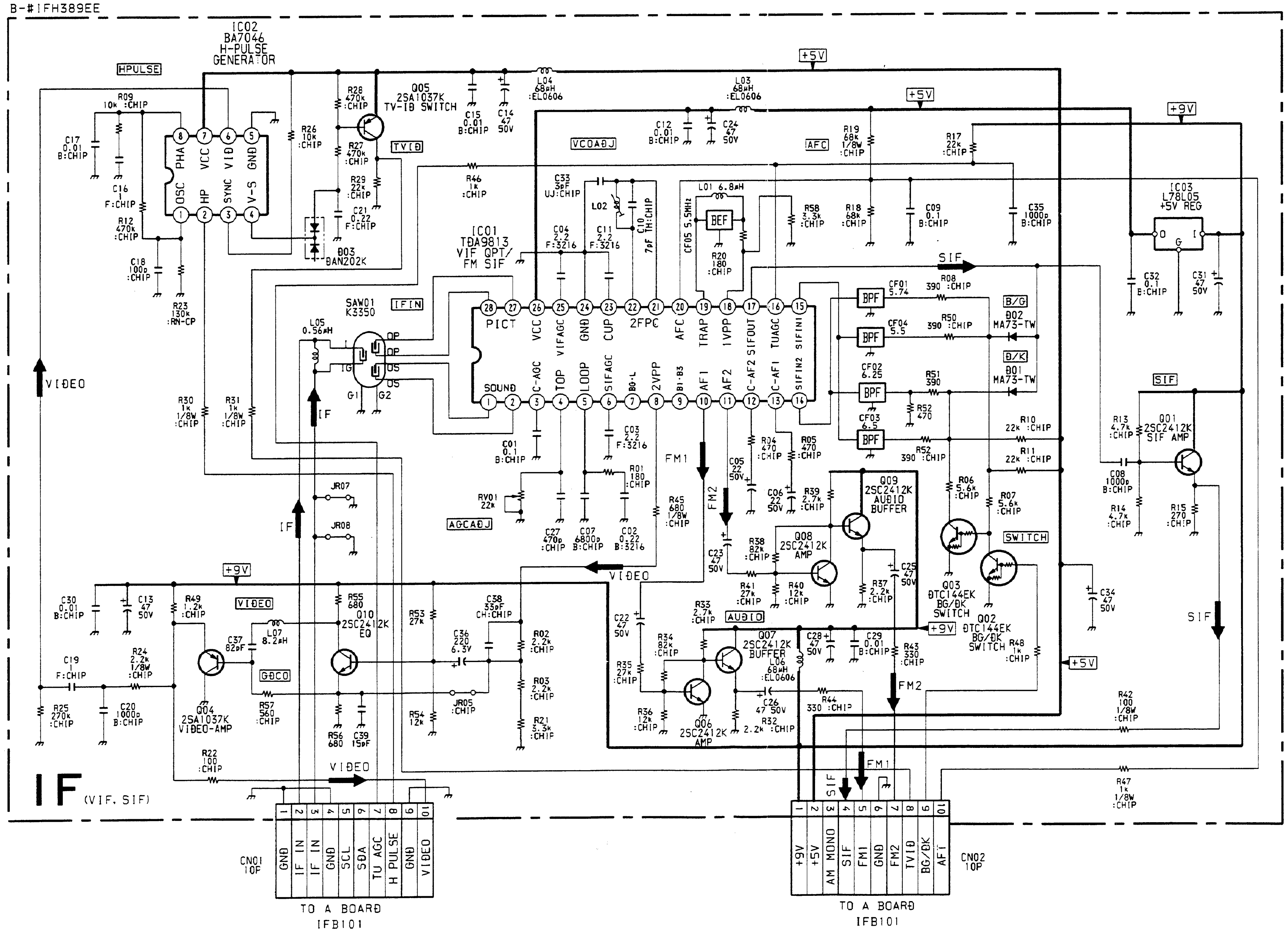

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
B-#SA1545<FR.>-389FX
CN1 10P WHT
GND
IF IN
IF IN
GND
SCL
SDA
TU AGC
H PULSE
GND
VIDEO
TO A BOARD IFB101
CN2 10P WHT
9V
5V
AM MONO
SIF
FM1
GND
FM2
TV ID
BG/DK
AFT
TO A BOARD IFB101
+5V
+9V
Q191 2SA1037K ATT BUFFER
L101 68µH :EL0606
D101 DAN202K
Q104 DTC144EK SIF SW
SWF103 K9453M
Q102 DTC144EK SIF SW
BG. I. DK. L
L501 15µH :EL0606
T11 77.8MHZ
IC1 TBA9815 VIF OPT/ FM SIF
Q101 2SC3355 IF BUFFER
SWF101 K3953M
CT101 EFCV4045
L901 15µH :EL0606
Q171 2SA1037K SW
Q181 2SC2412K VIDEO AMP
D171 DAN202K
Q174 DTC144EK SW
Q175 DTC144EK SW
CF171 SFE6.0MB
CF172 SFE6.5MB
CF173 SFE5.74MC2
CF174 SFE5.5MC2
L171 33µH :EL0606
L131 6.8µH :EL0606
CT131 5.5/6.5M
Q176 DTC144EK
Q162 2SC2412K AUDIO BUFFER
Q161 2SC2412K AUDIO AMP
Q152 2SC2412K AUDIO BUFFER
Q151 2SC2412K AUDIO AMP
Q153 2SC2412K SW
Q154 DTC144EK STANBY SW
L201 68µH :EL0606
IC2 BA7046 H-PULSE GENERATOR
Q201 2SA1037K TV ID SW
D201 DAN202K
IC3 CXA1875M SWITCH CONTROL
IF (VIF, SIF)
IC4 NJM2233BM VIDEO SW
Q121 2SA1037K VIDEO AMP
Q141 2SC2412K VIDEO 1 EQ
Q142 2SC2412K VIDEO 1 BUFFER
L142 10µH :EL0606
Q131 2SC2412K VIDEO 2 EQ
Q132 2SC2412K VIDEO 2 BUFFER
L132 39µH
I. DK. L
BG
= TEST POINT

IF [VIF, SIF]

— IF Board — (KV-28WS3B ONLY)

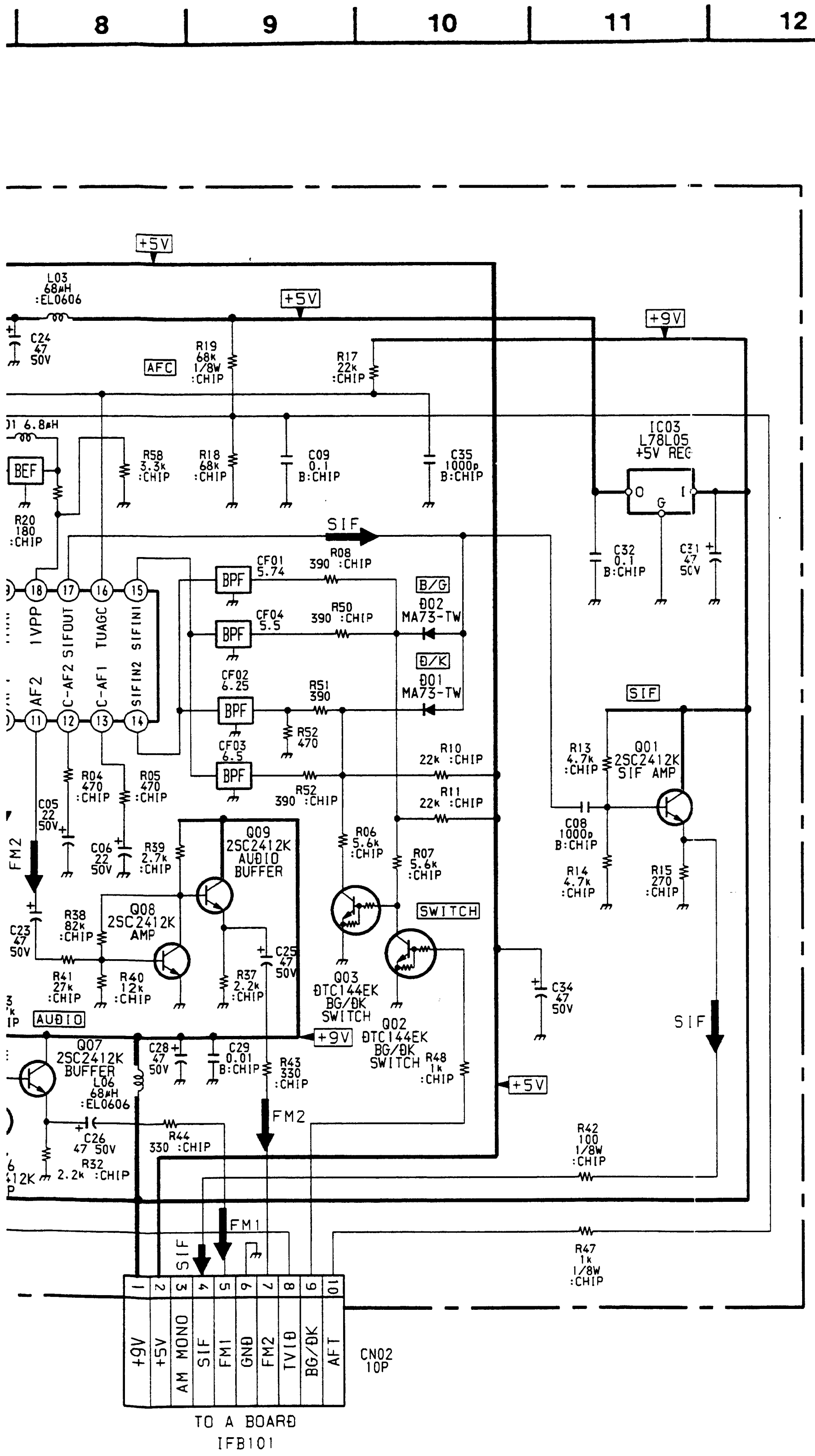

SONY IF
1-651-474-11
GND
IF
SCL
SDA
AGC
VIDEO
9V
5V
SIF
AFT
CN1
CN2
IC1
IC2
IC3
IC4

IFH-389WE (KV-28WS3A, 3D,3E ONLY)
IFH-389EE (KV-28WS3K ONLY)
IFH-395GB (KV-28WS3U ONLY)


B-#IFH389EE
IC02
BA7046
H-PULSE
GENERATOR
HPULSE
Q05
2SA1037K
TV-IB SWITCH
TVIB
L04
68μH
:EL0606
L03
68μH
:EL0606
+5V
+9V
VCOADJ
AFC
IC01
TDA9813
VIF DPT/
FM SIF
IC03
L78L05
+5V REG
D03
BAN202K
SAW01
K3350
IFIN
L05
0.56μH
PICT
SOUND
L01 6.8μH
BEF
BPF
CF01 5.74
CF04 5.5
CF02 6.25
CF03 6.5
SIF
B/G
D02
MA73-TW
D/K
D01
MA73-TW
Q01
2SC2412K
SIF AMP
VIDEO
IF
AGCADJ
FM1
FM2
Q09
2SC2412K
AUDIO
BUFFER
Q08
2SC2412K
AMP
Q03
DTC144EK
BG/DK
SWITCH
Q02
DTC144EK
BG/DK
SWITCH
SWITCH
Q07
2SC2412K
BUFFER
L06
68μH
:EL0606
Q06
2SC2412K
AMP
AUDIO
Q04
2SA1037K
VIDEO-AMP
Q10
2SC2412K
EQ
L07
8.2μH
GDCO
I F (VIF, SIF)
CN01
10P
GND
IF IN
IF IN
GND
SCL
SDA
TU AGC
H PULSE
GND
VIDEO
TO A BOARD
IFB101
CN02
10P
+9V
+5V
AM MONO
SIF
FM1
GND
FM2
TVIB
BG/DK
AFI
TO A BOARD
IFB101

IF BOARD * MARK

Model Ref. No.	28WS3A	28WS3D	28WS3E	28WS3K
C23	47MF 50V	47MF 50V	47MF 50V	47MF 50V
C25	47MF 50V	47MF 50V	47MF 50V	47MF 50V
C36	–	–	–	220MF 6.3V
C37	–	–	–	82PF
C38	27PF	27PF	27PF	33PF
C39	–	–	–	15PF
CF01	5.74MHz	5.74MHz	5.74MHz	5.74MHz
CF02	–	–	–	6.25MHz
CF03	6.5MHz	6.5MHz	6.5MHz	6.5MHz
CF04	5.5MHz	5.5MHz	5.5MHz	5.5MHz
CF05	5.5MHz	5.5MHz	5.5MHz	5.5MHz
D01	MA73-TX	MA73-TX	MA73-TX	MA73-TX
D02	MA73-TX	MA73-TX	MA73-TX	MA73-TX
L01	10UH	10UH	10UH	6.8UH
L07	–	–	–	8.2UH
Q02	DTC144EK	DTC144EK	DTC144EK	DTC144EK
Q03	DTC144EK	DTC144EK	DTC144EK	DTC144EK
Q08	2SC2412K	2SC2412K	2SC2412K	2SC2412K
Q09	2SC2412K	2SC2412K	2SC2412K	2SC2412K
Q10	–	–	–	2SC2412K
JR5	0 : CHIP	0 : CHIP	0 : CHIP	–
R06	5.6K	5.6K	5.6K	5.6K
R07	5.6K	5.6K	5.6K	5.6K
R08	390	390	390	390
R10	22K	22K	22K	22K
R11	22K	22K	22K	22K
R20	220	220	220	180
R21	1K	1K	1K	3.3K
R37	2.2K	2.2K	2.2K	2.2K
R38	82K	82K	82K	82K
R39	2.7K	2.7K	2.7K	2.7K
R40	12K	12K	12K	12K
R41	27K	27K	27K	27K
R43	330	330	330	330
R45	1K	1K	1K	680
R48	1K	1K	1K	1K
R51	–	–	–	390
R52	390	390	390	390
R53	–	–	–	27K
R54	–	–	–	12K
R55	–	–	–	680
R56	–	–	–	680
R57	0 : CHIP	0 : CHIP	0 : CHIP	560
R59	–	–	–	470
R60	–	–	–	–
R61	100	100	100	–
SAW01	K3350	K3350	K3350	K3350

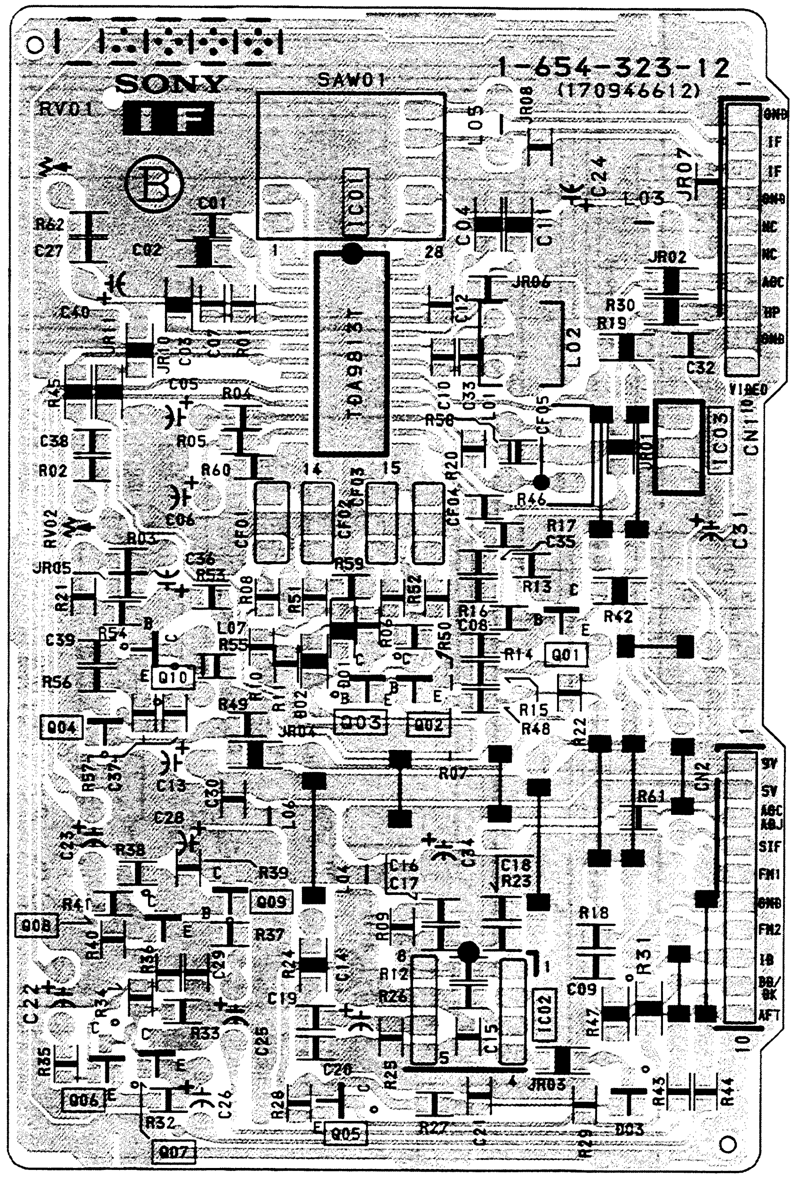

8
9
10
11
12
13
14
15
+5V
L03 68µH :EL0606
C24 47 50V
AFC
R19 68k 1/8W :CHIP
R17 22k :CHIP
+9V
IC03 L78L05 +5V REG
BEF
R20 180 :CHIP
R58 3.3k :CHIP
R18 68k :CHIP
C09 0.1 B:CHIP
C35 1000p B:CHIP
SIF
C32 0.1 B:CHIP
C31 47 50V
CF01 5.74
BPF
R08 390 :CHIP
B/G
D02 MA73-TW
CF04 5.5
R50 390 :CHIP
CF02 6.25
R51 390
D/K
D01 MA73-TW
CF03 6.5
R52 470
R10 22k :CHIP
R11 22k :CHIP
R13 4.7k :CHIP
Q01 2SC2412K SIF AMP
C08 1000p B:CHIP
R14 4.7k :CHIP
R15 270 :CHIP
IVPP
SIFOUT
TUAGC
SIFIN1
AF2
C-AF2
C-AF1
SIFIN2
R04 470 :CHIP
R05 470 :CHIP
C05 22 50V
C06 22 50V
R39 2.7k :CHIP
Q09 2SC2412K AUDIO BUFFER
R06 5.6k :CHIP
R07 5.6k :CHIP
SWITCH
FM2
R38 82k :CHIP
Q08 2SC2412K AMP
C23 47 50V
R41 27k :CHIP
R40 12k :CHIP
R37 2.2k :CHIP
C25 47 50V
Q03 DTC144EK BG/DK SWITCH
Q02 DTC144EK BG/DK SWITCH
R48 1k :CHIP
C34 47 50V
AUDIO
Q07 2SC2412K BUFFER
L06 68µH :EL0606
C28 47 50V
C29 0.01 B:CHIP
R43 330 :CHIP
+9V
+5V
C26 47 50V
R44 330 :CHIP
R32 2.2k :CHIP
R42 100 1/8W :CHIP
R47 1k 1/8W :CHIP
FM1
+9V
+5V
AM MONO
SIF
FM1
GND
FM2
TV(0)
BG/DK
AFT
CN02 10P
TO A BOARD IFB101

IF BOARD * MARK

Ref. No. \ Model	28WS3A	28WS3D	28WS3E	28WS3K	28WS3U
C23	47MF 50V	47MF 50V	47MF 50V	47MF 50V	–
C25	47MF 50V	47MF 50V	47MF 50V	47MF 50V	–
C36	–	–	–	220MF 6.3V	–
C37	–	–	–	82PF	–
C38	27PF	27PF	27PF	33PF	47PF
C39	–	–	–	15PF	–
CF01	5.74MHz	5.74MHz	5.74MHz	5.74MHz	–
CF02	–	–	–	6.25MHz	–
CF03	6.5MHz	6.5MHz	6.5MHz	6.5MHz	–
CF04	5.5MHz	5.5MHz	5.5MHz	5.5MHz	6.0MHz
CF05	5.5MHz	5.5MHz	5.5MHz	5.5MHz	6.0MHz
D01	MA73-TX	MA73-TX	MA73-TX	MA73-TX	–
D02	MA73-TX	MA73-TX	MA73-TX	MA73-TX	0 : CHIP
L01	10UH	10UH	10UH	6.8UH	8.2UH
L07	–	–	–	8.2UH	–
Q02	DTC144EK	DTC144EK	DTC144EK	DTC144EK	–
Q03	DTC144EK	DTC144EK	DTC144EK	DTC144EK	–
Q08	2SC2412K	2SC2412K	2SC2412K	2SC2412K	–
Q09	2SC2412K	2SC2412K	2SC2412K	2SC2412K	–
Q10	–	–	–	2SC2412K	–
JR5	0 : CHIP	0 : CHIP	0 : CHIP	–	0 : CHIP
R06	5.6K	5.6K	5.6K	5.6K	–
R07	5.6K	5.6K	5.6K	5.6K	–
R08	390	390	390	390	–
R10	22K	22K	22K	22K	–
R11	22K	22K	22K	22K	–
R20	220	220	220	180	180
R21	1K	1K	1K	3.3K	1.8K
R37	2.2K	2.2K	2.2K	2.2K	–
R38	82K	82K	82K	82K	–
R39	2.7K	2.7K	2.7K	2.7K	–
R40	12K	12K	12K	12K	–
R41	27K	27K	27K	27K	–
R43	330	330	330	330	–
R45	1K	1K	1K	680	1K
R48	1K	1K	1K	1K	–
R51	–	–	–	390	–
R52	390	390	390	390	–
R53	–	–	–	27K	–
R54	–	–	–	12K	–
R55	–	–	–	680	–
R56	–	–	–	680	–
R57	0 : CHIP	0 : CHIP	0 : CHIP	560	0 : CHIP
R59	–	–	–	470	–
R60	–	–	–	–	5.6K
R61	100	100	100	–	100
SAW01	K3350	K3350	K3350	K3350	J3352K

IF [VIF, SIF]

— IF Board — (KV-28WS3A, 3D, 3E, 3K, 3U ONLY)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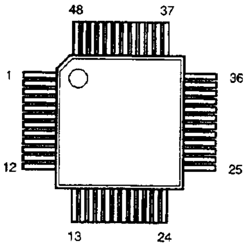
SONY
IF
SAW01
RV01
RV02
IC01
TDA9813T
IC02
IC03
CN110
CN2
VIDEO
GND
IF
AGC
RF
SV
ABC ADJ
SIF
FM1
FM2
IB
BG/DK
AFT
Q01
Q02
Q03
Q04
Q05
Q06
Q07
Q08
Q09
Q10
L01
L02
L03
L06
L07
JR01
JR02
JR03
JR04
JR05
JR06
JR07
JR08
JR10

5-4. SEMICONDUCTORS

CXA1839Q-T6
CXD1178Q


48
37
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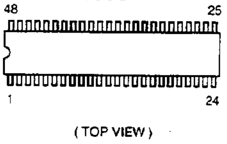
36
12
25
13
24

CXA1840S
CXA1855S


48
25
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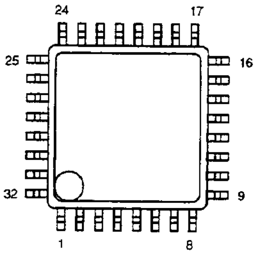
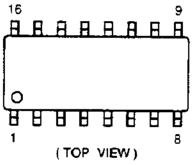
24
(TOP VIEW)

CXA1860Q-T4
CXD1176Q
CXD2300Q-T4


24
17
25
16
32
9
1
8

CXA1875AM


16
9
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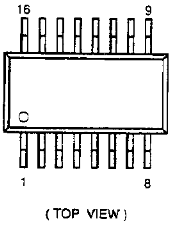
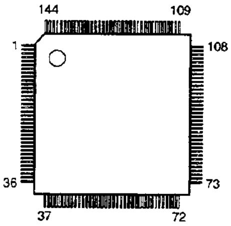
8
(TOP VIEW)

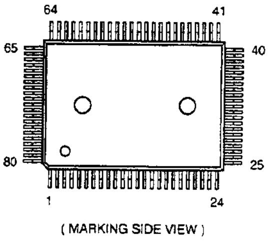
CXD1172AM
MC14046BF
MC74F157AM-T2
MC74HC4053F
NJM2284M


16
9
1
8
(TOP VIEW)

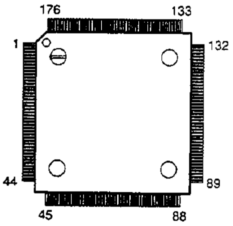
CXD2030R-TL
CXD2031R-TL


144
109
1
108
36
73
37
72

CXD2032Q-TL
CXD2036Q-TL


64
41
65
40
80
25
1
24
(MARKING SIDE VIEW)

CXD2035R


176
133
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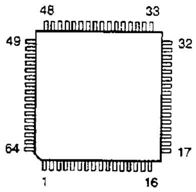
132
44
89
45
88

CXD2307R-T4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32
64
17
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16

CXK1206ATM
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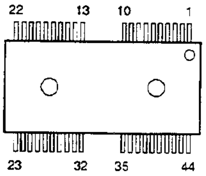
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32
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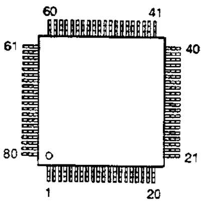
CXK48324R-1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80
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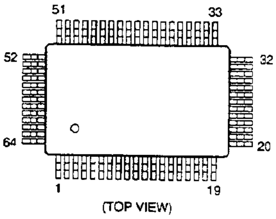
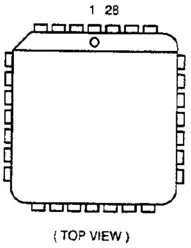
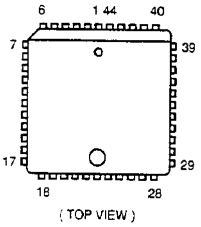
CXP85112B-622Q-TL
SAA7283GP


51
33
52
32
64
20
1
19
(TOP VIEW)

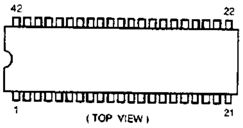
CY7C291A-35JC-AE302


1 28
(TOP VIEW)

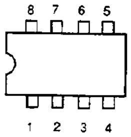
EPM7032LC44-15-AE301
P83C652FBA/526


6
1 44
40
7
39
17
29
18
28
(TOP VIEW)

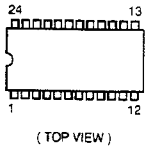
LA2785


42
22
1
21
(TOP VIEW)

LM393P
M5216P
SDA9086-5
ST24C16CB1
TDA2822M
TEA2114



LV1011
TDA8443B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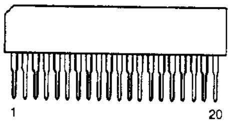
13
1
12
(TOP VIEW)

MB81C4256A-70PSZG



MC14577CFEL
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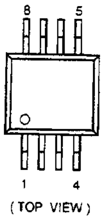
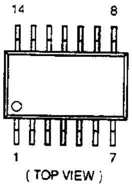
X24164SIC7000
μPC358C
μPC358G2


8
5
1
4
(TOP VIEW)

MC74F04M
MC74HC04AF
MC74HC74AF
MC74HCU04F
SN74HC04ANS
SN74HC08ANS
SN74HC74ANS
TC74HCU04AF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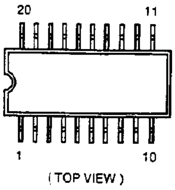
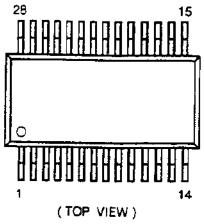
8
1
7
(TOP VIEW)

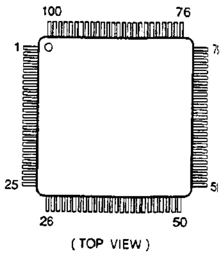
MC74F244M-T2
SN74BCT245NS-TSR
SN74LS541NS
TEA2130


20
11
1
10
(TOP VIEW)

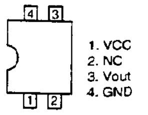
MSM514222B-30GS-KR1


28
15
1
14
(TOP VIEW)

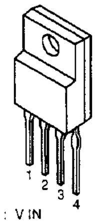
MSM548333TS-K


100
76
1
7
25
5
26
50
(TOP VIEW)

PC123F2
PC123FY2

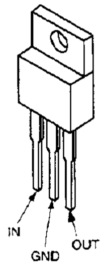

4
3
1
2
1. VCC
2. NC
3. Vout
4. GND

PQ05RF21
PQ12RF21

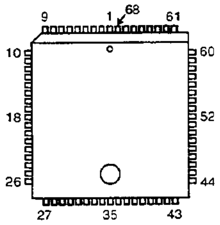


1 : V IN
2 : V OUT
3 : GND
4 : ON/OFF CONTROL

PQ09RE11
TEA7605

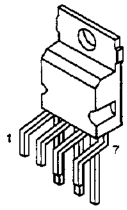


SDA30C163-2GEG
SDA5273P-C26-GEG
SDA9205-2GEG

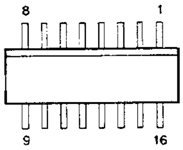

9
1
68
61
10
60
18
52
26
44
27
35
43

(TOP VIEW)

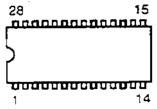
STV9379



TDA4665T-T

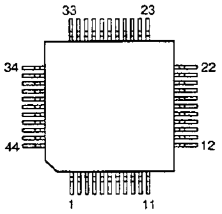


TDA6622-5



(TOP VIEW)

TDA6812-2MGEG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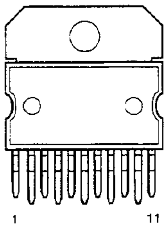
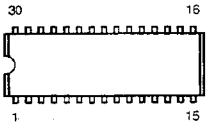
23
34
22
44
12
1
11

TDA7265

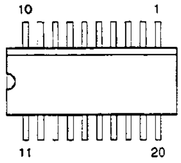


TDA7317

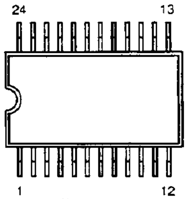


(TOP VIEW)

TDA8395T/N2

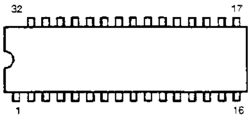


TDA9145/N3



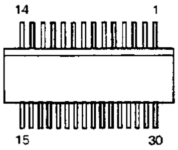
(TOP VIEW)

TDA9160A

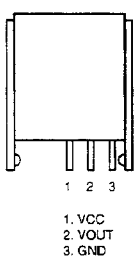


(TOP VIEW)

TDA9813T/V3
TDA9814T/V3

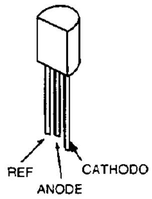


TFMY5400

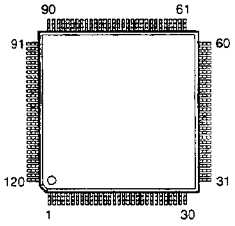


1. VCC
2. VOUT
3. GND

TL431CLP

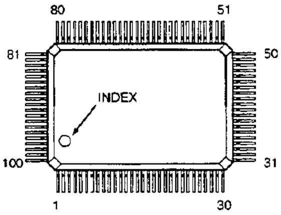

REF
ANODE
CATHODO

TMC57110-D77527PB


90
61
91
60
120
31
1
30

(TOP VIEW)

TMC57120-D77523PJ


80
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81
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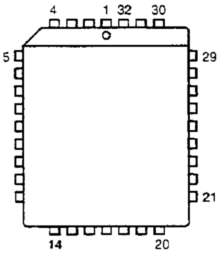
INDEX
100
31
1
30

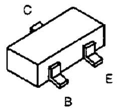
(TOP VIEW)

TMS27PC020-15FML

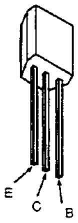

4
1
32
30
5
29
21
14
20

(TOP VIEW)

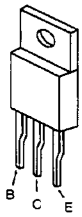
DTA114EK
DTC114EK
DTC124EKA-T146
DTC144EKA-T146
2SA1037K
2SA1162-G
2SC2412K
2SC2412K-QR



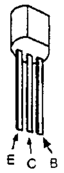
DTA144ESA
DTC144ESA



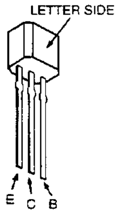
IRF610



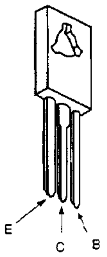
JA101 2SA733-K
JC501 2SA933S-R
2SA1091-O 2SC1740S-R
2SA1207 2SC2500-B
2SA1837 2SC2551-O



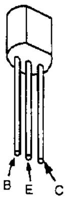
2SC2603-F
2SC2785-HFE


LETTER SIDE
E
C
B

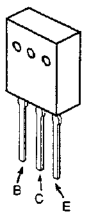
2SC2661
2SC2688-LK



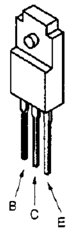
2SC3779C,D-AA



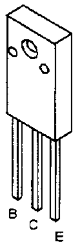
2SC3997CA



2SC4793



2SC4834NP-F09



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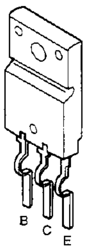
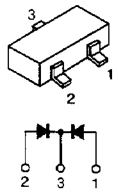
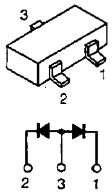


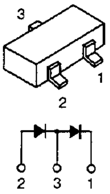
DAN202K



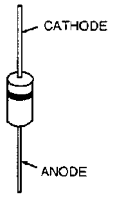
DAP202K



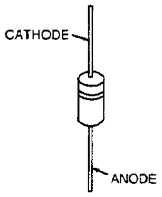
DA204K



D1NL20
GP08D
RGP02-20EL-6394
RGP10G


CATHODE
ANODE

D1N20R
MTZJ-T-77-9.1
MTZJ-T-77-9.1A
MTZJ-5.6B
MTZJ-6.8B
MTZJ-9.1B
MTZJ-15B
MTZJ-33C
MTZJ-39
RD39ESB2
RD5.6ESB2
RD6.8ESB2
RD9.1ESB2
S2LA20F
1SS119-25
1SS133T-77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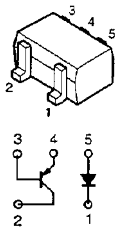
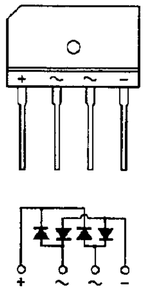
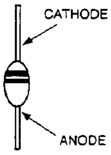
D10SC4M


3
4
5
2
1
3
4
5
2
1

D4SB60L
RBA-402L



ERC38-06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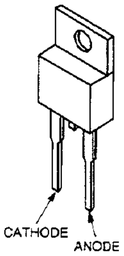
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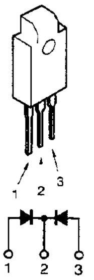
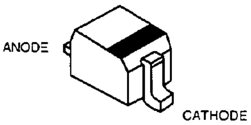
ESAC39M-06CF38
ESAD39M-06C



HVU359TRF
MA110
1SV214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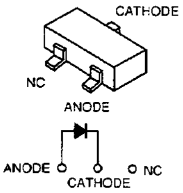
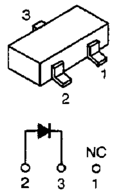
CATHODE

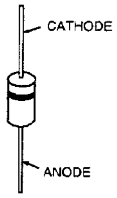
MA3030H (TX)


CATHODE
NC
ANODE
ANODE
NC
CATHODE

MA3039H-TX
MA3051M-TX
MA3056M
MA3082M-TX
MA3091
RB411D
RD5.1M-B2
RD5.6M-B2



R2K-V1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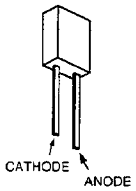
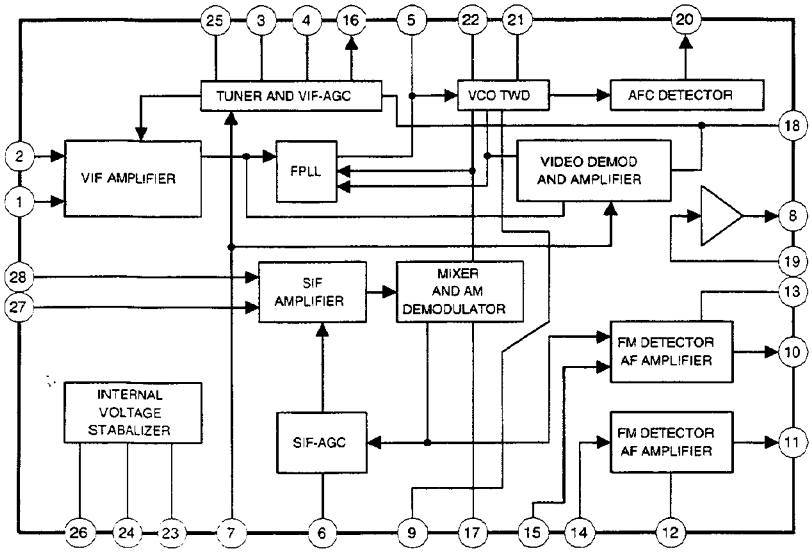
LD201VR

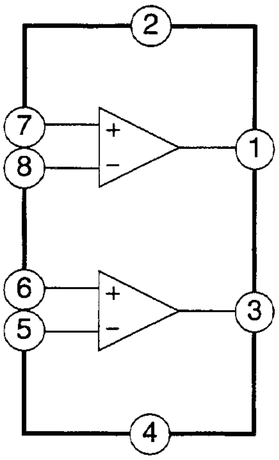

CATHODE
ANODE

IC BLOCK DIAGRAMS

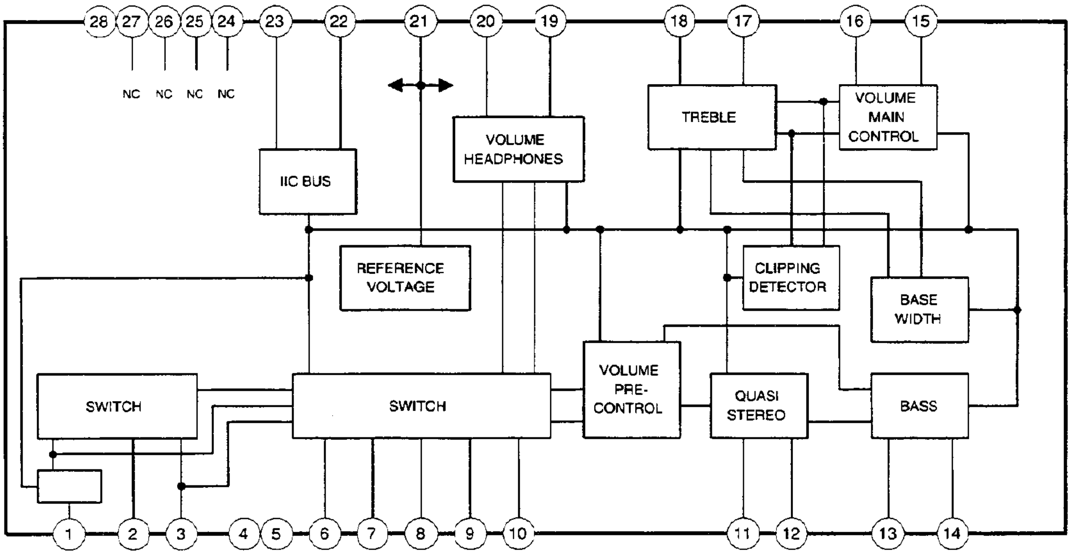
T Board IC5103 TDA9813T/TDA9814T


TUNER AND VIF-AGC
VCO TWD
AFC DETECTOR
VIF AMPLIFIER
FPLL
VIDEO DEMOD AND AMPLIFIER
SIF AMPLIFIER
MIXER AND AM DEMODULATOR
FM DETECTOR AF AMPLIFIER
FM DETECTOR AF AMPLIFIER
INTERNAL VOLTAGE STABALIZER
SIF-AGC
25 3 4 16 5 22 21 20
18 8 19 13 10 11
2 1 28 27
26 24 23 7 6 9 17 15 14 12

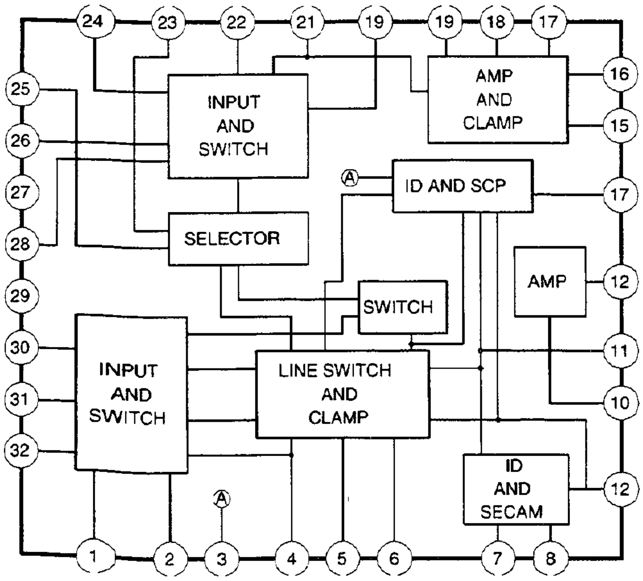
A Board IC202 TDA2822M



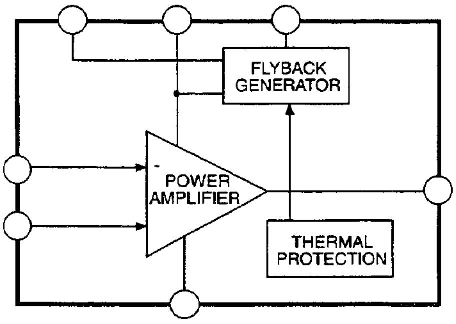
A1 Board IC3203 TDA6622-5


28 27 26 25 24 23 22 21 20 19 18 17 16 15
NC NC NC NC
IIC BUS
VOLUME HEADPHONES
TREBLE
VOLUME MAIN CONTROL
REFERENCE VOLTAGE
CLIPPING DETECTOR
BASE WIDTH
SWITCH
SWITCH
VOLUME PRE-CONTROL
QUASI STEREO
BASS
1 2 3 4 5 6 7 8 9 10 11 12 13 14

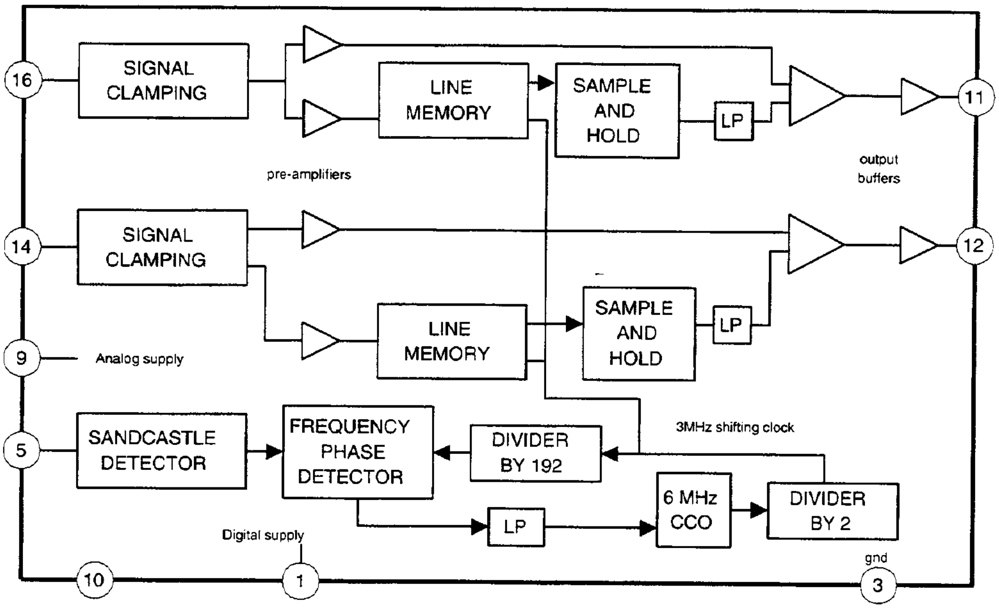
B1 Board IC1302 CXA1860Q


24 23 22 21 19 19 18 17
INPUT AND SWITCH
AMP AND CLAMP
16 15
25 26 27 28 29 30 31 32
Ⓐ
ID AND SCP
17
SELECTOR
SWITCH
AMP
12 11 10 12
INPUT AND SWITCH
LINE SWITCH AND CLAMP
ID AND SECAM
Ⓐ
1 2 3 4 5 6 7 8

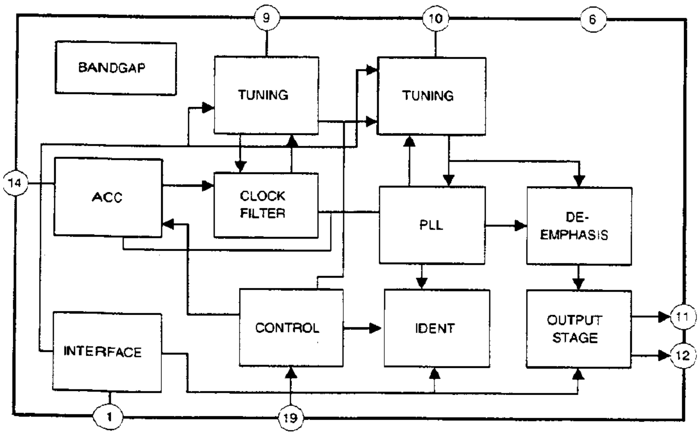
A Board IC1501 STV9379S


FLYBACK GENERATOR
POWER AMPLIFIER
THERMAL PROTECTION

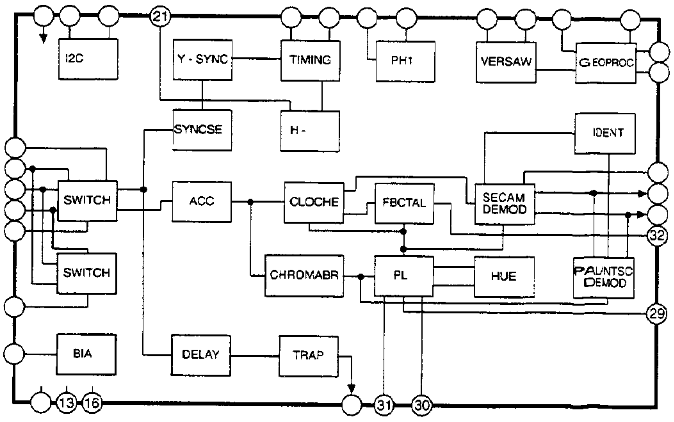
B1 Board IC3709 TDA4665T


16
SIGNAL CLAMPING
LINE MEMORY
SAMPLE AND HOLD
LP
11
pre-amplifiers
output buffers
14
SIGNAL CLAMPING
12
SAMPLE AND HOLD
LP
LINE MEMORY
9
Analog supply
5
SANDCASTLE DETECTOR
FREQUENCY PHASE DETECTOR
DIVIDER BY 192
3MHz shifting clock
6 MHz CCO
DIVIDER BY 2
LP
Digital supply
10
1
gnd
3

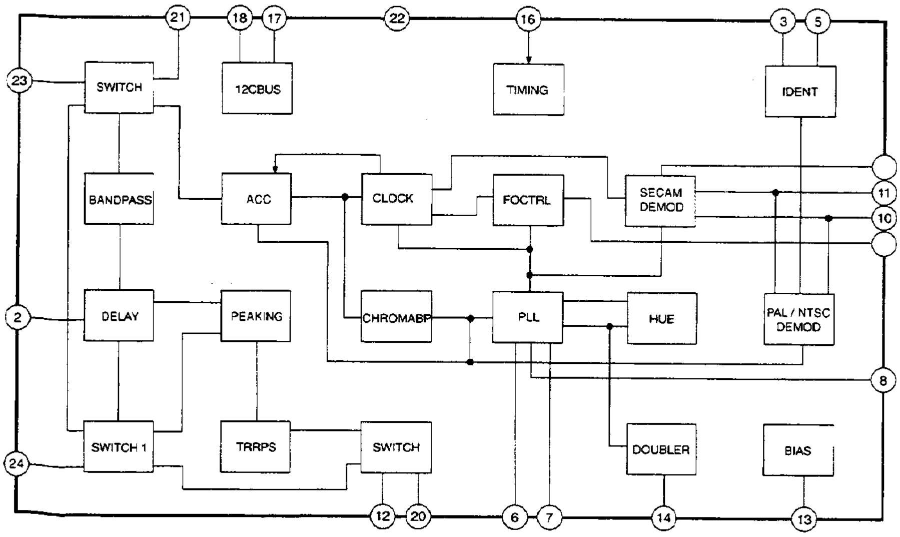
B1 Board IC1301 TDA8395ST


9
10
6
BANDGAP
TUNING
TUNING
14
ACC
CLOCK FILTER
PLL
DE-EMPHASIS
INTERFACE
CONTROL
IDENT
OUTPUT STAGE
11
12
1
19

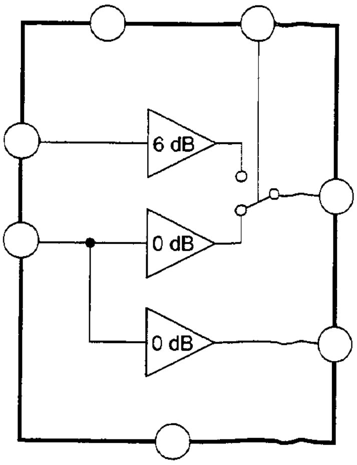
B1 Board IC3713 TDA9160A


21
I2C
Y - SYNC
TIMING
PH1
VERSAW
GEOPROC
SYNCSE
H -
IDENT
SWITCH
ACC
CLOCHE
FBCTAL
SECAM DEMOD
32
SWITCH
CHROMABR
PL
HUE
PAL/NTSC DEMOD
29
BIA
DELAY
TRAP
13
16
31
30

B2 Board IC9001 TDA9145/N3


21
18
17
22
16
3
5
23
SWITCH
12CBUS
TIMING
IDENT
BANDPASS
ACC
CLOCK
FOCTRL
SECAM DEMOD
11
10
2
DELAY
PEAKING
CHROMABP
PLL
HUE
PAL / NTSC DEMOD
8
SWITCH 1
TRRPS
SWITCH
DOUBLER
BIAS
24
12
20
6
7
14
13

J Board IC402 TEA2114



SECTION 6

EXPLODED VIEWS

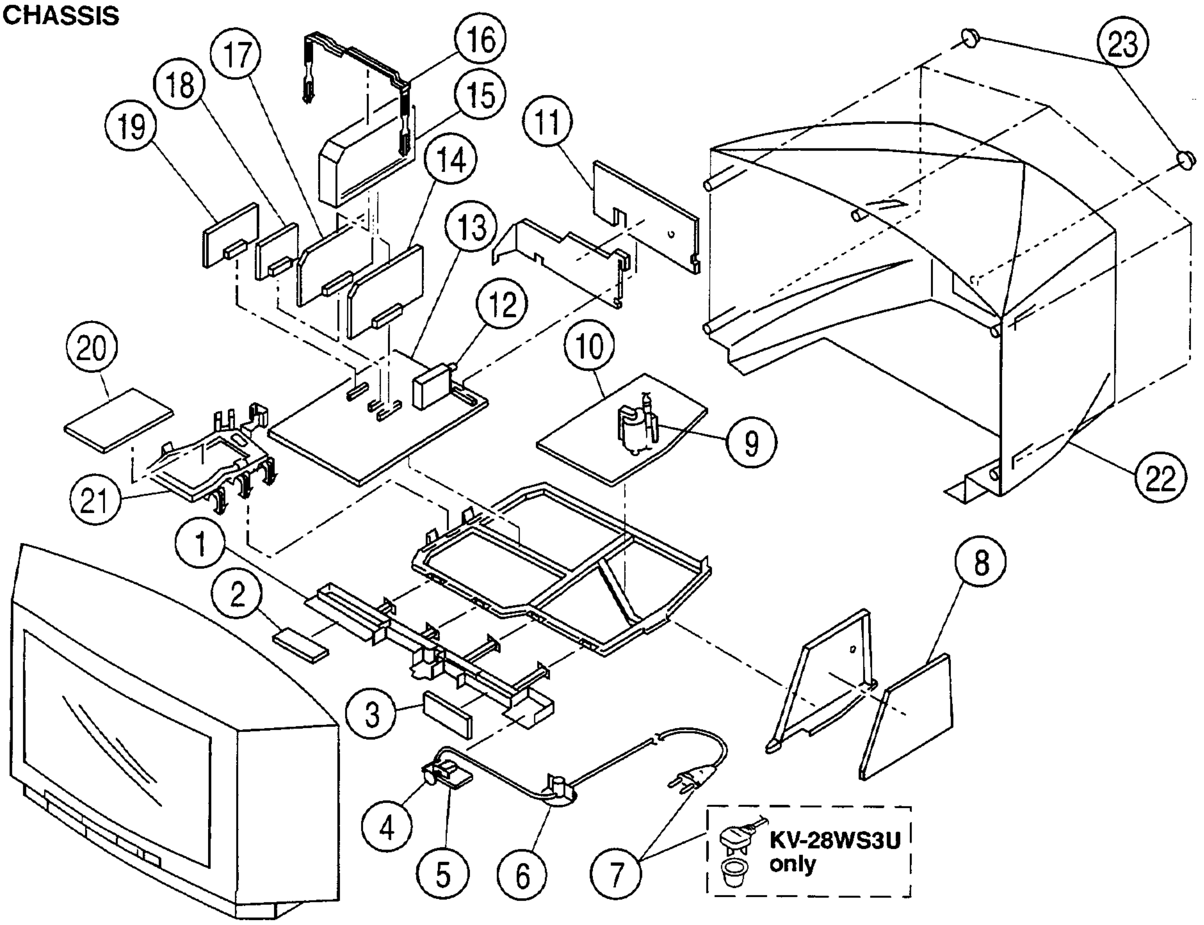
NOTE :

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

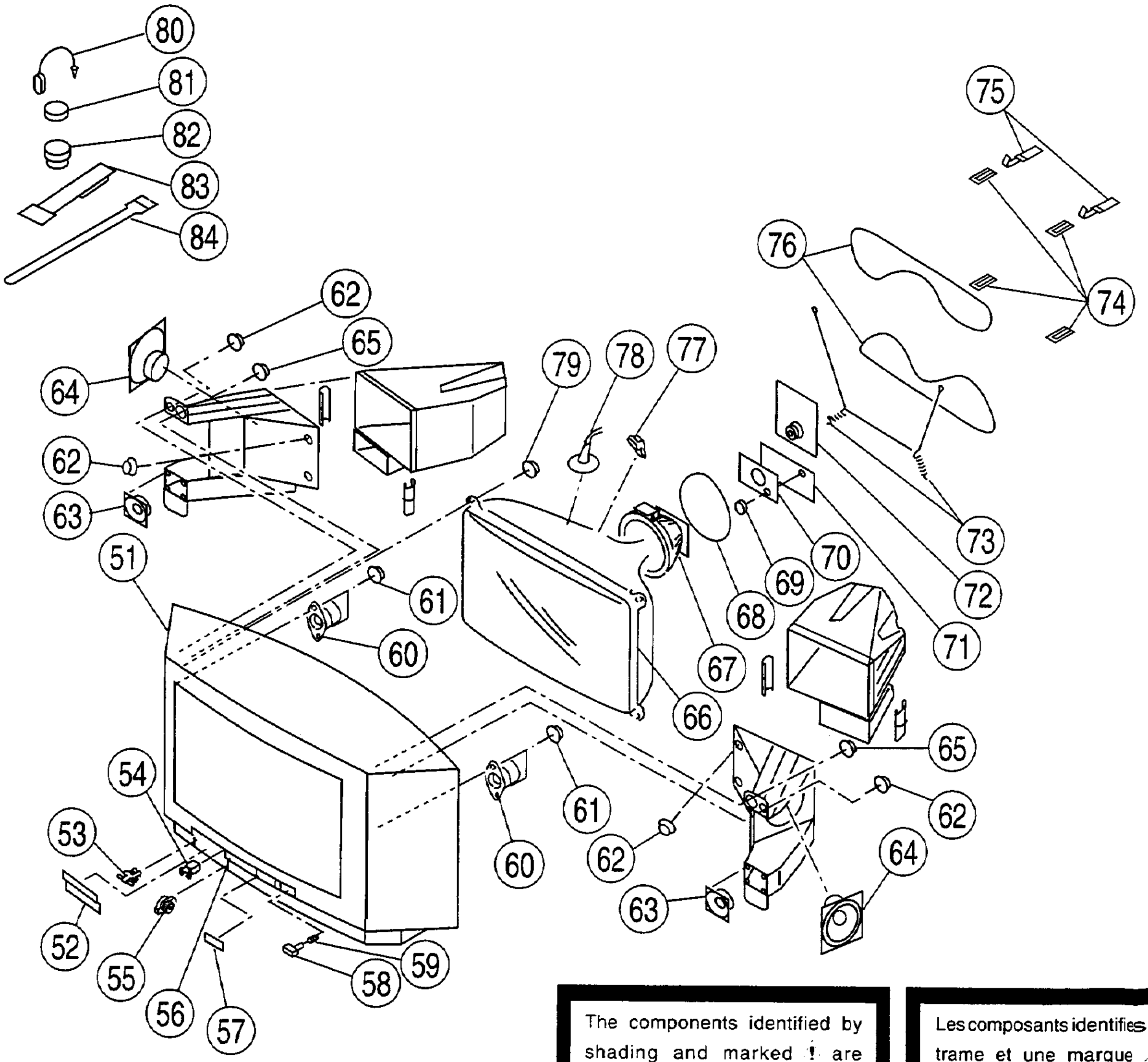
Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

6-1. CHASSIS



REF NO	PART NO	DESCRIPTION	REMARK
1	*4-050-003-01	BRACKET, H	
2	*A-1646-098-A	H1 BOARD, COMPLETE	
3	*A-1646-099-A	H2 BOARD, COMPLETE	(KV-28WS3A/28WS3D /28WS3E/28WS3K/28WS3U)
	*A-1646-108-A	H2 BOARD, COMPLETE	(KV-28WS3B)
4	⚠ 1-571-433-21	SWITCH, PUSH (AC POWER)	
5	*A-1624-052-A	F1 BOARD, COMPLETE	
6	*4-202-531-01	AC CORD, LOCK (SC)	
7	⚠ 1-751-680-11	CORD, POWER (WITH NOISE FILTER) 2.5A/250V	(KV-28WS3A/28WS3B/28WS3D /28WS3E/28WS3K)
	⚠ 1-590-762-11	CORD, POWER (WITH PLUG) 2.5A/250V	(KV-28WS3U)
8	*A-1636-009-A	G BOARD, COMPLETE	
9	⚠ 1-453-187-11	TRANSFORMER ASSY, FLYBACK	(NX-2661/U2E)
10	*A-1640-182-A	D BOARD, COMPLETE	
11	*A-1651-073-A	J BOARD, COMPLETE	
12	1-693-315-21	TUNER (UV1316)	(KV-28WS3A/28WS3B /28WS3D/28WS3E/28WS3K)
	1-693-314-21	TUNER (U1344)	(KV-28WS3U)
13	*A-1632-296-A	A BOARD, COMPLETE	(KV-28WS3A/28WS3D)
	*A-1632-337-A	A BOARD, COMPLETE	(KV-28WS3B)
	*A-1632-339-A	A BOARD, COMPLETE	(KV-28WS3E)
	*A-1632-340-A	A BOARD, COMPLETE	(KV-28WS3K)
	*A-1632-336-A	A BOARD, COMPLETE	(KV-28WS3U)
14	*A-1620-063-A	B1 BOARD, COMPLETE	(KV-28WS3A/28WS3D /28WS3E/28WS3K/28WS3U)
	*A-1620-067-A	B1 BOARD, COMPLETE	(KV-28WS3B)
15	*4-050-639-01	CASE, SHIELD (MAIN)	(KV-28WS3A/28WS3D /28WS3E/28WS3K/28WS3U)
16	*4-050-641-01	SUPPORTER (2), PCB	(KV-28WS3A/28WS3D /28WS3E/28WS3K/28WS3U)
17	*A-1626-004-A	Q BOARD, COMPLETE	(KV-28WS3A/28WS3D /28WS3E/28WS3K/28WS3U)
18	*A-1620-068-A	B2 BOARD, COMPLETE	(KV-28WS3B)
19	*A-1630-368-A	A1 BOARD, COMPLETE	
20	*A-1654-017-A	T BOARD, COMPLETE	(KV-28WS3A/28WS3D /28WS3E/28WS3K)
	*A-1654-020-A	T BOARD, COMPLETE	(KV-28WS3B)
	*A-1654-019-A	T BOARD, COMPLETE	(KV-28WS3U)
21	*4-050-453-01	BRACKET, T	
22	4-050-253-01	COVER, REAR	
23	4-039-358-01	SCREW (4X16), (+) BV TAPPING	

6-2. PICTURE TUBE



The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF NO	PART NO	DESCRIPTION	REMARK
51	4-050-243-01	BEZNET	
52	4-202-555-01	SHAFT, DOOR	
53	4-050-001-01	DOOR, CONTROL (KV-28WS3A/28WS3D/28WS3K)	
	4-050-001-41	DOOR, CONTROL (KV-28WS3B)	
	4-050-001-21	DOOR, CONTROL (KV-28WS3E/28WS3U)	
54	4-392-036-01	CATCHER, PUSH	
55	4-045-250-01	DAMPER	
56	4-050-002-01	PLATE, ORNAMENTAL	
57	4-050-000-01	WINDOW, ORNAMENT	
58	4-049-999-01	BUTTON, POWER	
59	4-202-964-01	SPRING	
60	1-504-418-21	SPEAKER (5CM)	
61	4-039-355-11	SCREW (4X12), (+) BV TAPPING	
62	4-039-358-01	SCREW (4X16), (+) BV TAPPING	
63	1-505-154-11	SPEAKER (6.5CM)	
64	1-505-155-11	SPEAKER (10CM)	
65	4-302-404-03	SCREW (WASHER HEAD) (+P 4X16)	
66	⚠ 8-737-762-05	PICTURE TUBE (SD-284) (W66LGY010X)	
67	⚠ 8-451-433-11	DEFLECTION YOKE (Y28GICM)	
68	⚠ 1-452-724-11	COIL, NA ROTATION (RT-165)	
69	4-039-356-11	SCREW (3X12), (+) BV TAPPING	
70	⚠ 8-453-005-31	NECK ASSY (NA297-M3)	
71	*A-1644-064-A	VM BOARD, COMPLETE	
72	*A-1638-070-A	C BOARD, COMPLETE	
73	4-200-433-01	SPRING, EXTENSION	
74	4-202-463-01	CLIP, DGC (25")	
75	*4-050-252-01	SPACER, DGC	
76	⚠ 1-409-646-11	COIL, DEGAUSSEING	
77	3-704-495-01	SPACER, DY	
78	⚠ 1-540-006-22	CAP ASSY, HIGH-VOLTAGE	
79	4-036-188-01	SCREW (M), PT	
80	4-308-870-00	CLIP, LEAD WIRE	
81	1-452-032-00	MAGNET, DISK; 10MM Ø	
82	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
83	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
84	3-701-007-00	BAND, BINDING	

SECTION 7

ELECTRICAL PARTS LIST

When indicating parts by reference number, please include the board name.

CAPACITORS
MF : mF, PF : mmF

COILS
MMH : mH, μH : mH

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

B1

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1620-063-A	B1 BOARD, COMPLETE (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U) ******************	
	*A-1620-067-A	B1 BOARD, COMPLETE (KV-28WS3B) ******************	
		< CAPACITOR >	
C01	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C02	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C03	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C04	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C05	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C06	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C07	1-104-664-11	ELECT 47MF 20%	25V
C08	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C09	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C10	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C11	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C12	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C14	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C15	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C16	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C17	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C18	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C19	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C20	1-163-124-00	CERAMIC CHIP 200PF 5%	50V
C21	1-163-121-00	CERAMIC CHIP 150PF 5%	50V
C22	1-104-664-11	ELECT 47MF 20%	25V
C23	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C301	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C302	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C303	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C304	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C305	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C306	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C307	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C308	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C309	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C310	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C311	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C312	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C313	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C315	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C316	1-163-119-00	CERAMIC CHIP 120PF 5%	50V
C317	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C318	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C319	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C320	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C321	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C322	1-104-664-11	ELECT 47MF 20%	25V
C323	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C324	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C325	1-104-664-11	ELECT 47MF 20%	25V
C326	1-126-933-11	ELECT 100MF 20%	16V
C327	1-126-933-11	ELECT 100MF 20%	16V
C328	1-126-933-11	ELECT 100MF 20%	16V
C329	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C330	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C331	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C332	1-163-137-00	CERAMIC CHIP 680PF 5%	50V
C333	1-163-137-00	CERAMIC CHIP 680PF 5%	50V
C334	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C335	1-163-099-00	CERAMIC CHIP 18PF 5%	50V
C336	1-163-096-00	CERAMIC CHIP 13PF 5%	50V
C337	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C338	1-104-664-11	ELECT 47MF 20%	25V
C339	1-126-964-11	ELECT 10MF 20%	50V
C340	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C341	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C342	1-126-964-11	ELECT 10MF 20%	50V
C343	1-126-964-11	ELECT 10MF 20%	50V
C344	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C501	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C502	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C503	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C504	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C505	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C506	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C507	1-104-664-11	ELECT 47MF 20%	25V
C508	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C509	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C510	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C511	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C512	1-163-037-11	CERAMIC CHIP 0.022MF 10% (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	25V
C513	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C514	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C515	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C516	1-162-568-11	CERAMIC CHIP 0.33MF 10%	16V
C517	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C518	1-163-038-91	CERAMIC CHIP 0.1MF	25V

REF.NO.	PART NO.	DESCRIPTION	REMARK
C519	1-124-902-00	ELECT 0.47MF 20%	50V
C520	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C522	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C525	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C527	1-164-326-91	CERAMIC CHIP 0.47MF	25V (KV-28WS3B)
C528	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C530	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V (KV-28WS3B)
C531	1-104-664-11	ELECT 47MF 20%	25V (KV-28WS3B)
C532	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C533	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C534	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C535	1-164-004-91	CERAMIC CHIP 0.1MF 10%	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-163-037-11	CERAMIC CHIP 0.022MF 10%	25V (KV-28WS3B)
C536	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C537	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C538	1-104-664-11	ELECT 47MF 20%	25V (KV-28WS3B)
C539	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C540	1-104-664-11	ELECT 47MF 20%	25V (KV-28WS3B)
C541	1-104-664-11	ELECT 47MF 20%	25V (KV-28WS3B)
C542	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3B)
C543	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C544	1-104-664-11	ELECT 47MF 20%	25V (KV-28WS3B)
C545	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C546	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C547	1-126-924-11	ELECT 330MF 20%	10V
C548	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C549	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C550	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C551	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C552	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C553	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C554	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C555	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C556	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C557	1-163-111-00	CERAMIC CHIP 56PF 5%	50V

REF.NO.	PART NO.	DESCRIPTION	REMARK
C558	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C559	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C560	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C561	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C563	1-104-664-11	ELECT 47MF 20%	25V
C564	1-163-038-91	CERAMIC CHIP 0.1MF	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C1301	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C1302	1-126-964-11	ELECT 10MF 20%	50V
C1303	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1306	1-126-964-11	ELECT 10MF 20%	50V
C1307	1-126-964-11	ELECT 10MF 20%	50V
C1308	1-126-964-11	ELECT 10MF 20%	50V
C1309	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C1310	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C1311	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1313	1-163-125-00	CERAMIC CHIP 220PF 5%	50V
C1314	1-126-964-11	ELECT 10MF 20%	50V
C1315	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C1316	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C1317	1-164-489-11	CERAMIC CHIP 0.22MF 10%	16V
C1318	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C1319	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C1320	1-164-004-91	CERAMIC CHIP 0.1MF 10%	25V (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-163-037-11	CERAMIC CHIP 0.022MF 10%	25V (KV-28WS3B)
C1321	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C1322	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C1323	1-163-099-00	CERAMIC CHIP 18PF 5%	50V
C1324	1-163-037-11	CERAMIC CHIP 0.022MF 10%	25V
C1347	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1348	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1349	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C1350	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C1351	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C1352	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1431	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1432	1-104-664-11	ELECT 47MF 20%	25V
C1436	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1443	1-104-664-11	ELECT 47MF 20%	25V
C3700	1-104-664-11	ELECT 47MF 20%	25V
C3701	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3702	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3703	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3707	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3708	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3709	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3710	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3711	1-126-965-11	ELECT 22MF 20%	50V
C3712	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3713	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3714	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3715	1-104-664-11	ELECT 47MF 20%	25V
C3716	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3717	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3718	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3719	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C3720	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3721	1-163-038-91	CERAMIC CHIP 0.1MF	25V

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REF.NO.	PART NO.	DESCRIPTION	REMARK
C3722	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3723	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3724	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3725	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3726	1-104-664-11	ELECT 47MF 20%	25V
C3727	1-126-964-11	ELECT 10MF 20%	50V
C3730	1-126-964-11	ELECT 10MF 20%	50V
C3731	1-126-049-91	ELECT 10MF 20%	50V
C3732	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3733	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3734	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3735	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3736	1-104-664-11	ELECT 47MF 20%	25V
C3737	1-164-346-11	CERAMIC CHIP 1MF	16V
C3738	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3739	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3740	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3741	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3743	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3744	1-126-965-11	ELECT 22MF 20%	50V
C3745	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3746	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3747	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3748	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C3749	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3750	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3751	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3752	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C3753	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C3754	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C3755	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C3756	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3757	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3759	1-163-038-91	CERAMIC CHIP 0.1MF	25V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3760	1-164-005-11	CERAMIC CHIP 0.47MF	16V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3761	1-164-038-11	CERAMIC 2PF 0.25PF	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3764	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3767	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3768	1-164-505-11	CERAMIC CHIP 2.2MF	16V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3769	1-163-097-00	CERAMIC CHIP 15PF 5%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3770	1-164-038-11	CERAMIC 2PF 0.25PF	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3771	1-104-664-11	ELECT 47MF 20%	25V
C3772	1-163-037-11	CERAMIC CHIP 0.022MF 10%	25V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3773	1-163-097-00	CERAMIC CHIP 15PF 5%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3774	1-124-903-11	ELECT 1MF 20%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3775	1-163-038-91	CERAMIC CHIP 0.1MF	25V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3776	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3777	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3778	1-104-664-11	ELECT 47MF 20%	25V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
C3779	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C3782	1-163-143-00	CERAMIC CHIP 0.0012MF 5%	50V
C3783	1-164-161-11	CERAMIC CHIP 0.0022MF 10%	50V
C3790	1-163-251-91	CERAMIC CHIP 100PF 5%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
	1-163-259-91	CERAMIC CHIP 220PF 5%	50V
			(KV-28WS3B)
		< CONNECTOR >	
CN0301	1-695-513-21	SOCKET,CONNECTOR 30P	
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
CN0302	1-695-302-11	CONNECTOR, BOARD TO BOARD 50P	
		< DIODE >	
D01	8-719-914-44	DIODE DAP202K	
D301	8-719-031-68	DIODE HVU359TRF	
D302	8-719-031-68	DIODE HVU359TRF	
D303	8-719-404-46	DIODE MA110	
D1301	8-719-404-46	DIODE MA110	
D1302	8-719-914-43	DIODE DAN202K	
D1304	8-719-914-43	DIODE DAN202K	
D1309	8-719-914-43	DIODE DAN202K	
D3700	8-719-105-91	DIODE RD5.6M-B2	
D3701	8-719-031-68	DIODE HVU359TRF	
D3702	8-719-031-68	DIODE HVU359TRF	
D3703	8-719-975-40	DIODE RB411D	
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
		< FERRITE BEAD >	
FB3700	1-414-234-11	INDUCTOR, FERRITE BEAD	
		< ENCAPSULATED FILTER >	
FL01	1-233-446-11	FILTER, LOW PASS	
FL02	1-233-438-11	FILTER, LOW PASS	
FL03	1-233-438-11	FILTER, LOW PASS	
FL301	1-236-620-11	FILTER, LOW PASS	
FL302	1-236-620-11	FILTER, LOW PASS	
FL352	1-233-436-11	FILTER, LOW PASS (KV-28WS3B)	
FL353	1-233-435-11	FILTER, LOW PASS (KV-28WS3B)	
FL355	1-233-436-11	FILTER, LOW PASS (KV-28WS3B)	
FL1301	1-233-434-11	FILTER, LOW PASS	
FL1302	1-233-434-11	FILTER, LOW PASS	
FL3700	1-233-436-11	FILTER, LOW PASS	
FL3701	1-233-436-11	FILTER, LOW PASS	
FL3702	1-233-435-11	FILTER, LOW PASS	
		< IC >	
IC01	8-752-338-46	IC CXD1178Q	
IC02	8-752-370-87	IC CXD2035R	
IC04	8-752-365-06	IC CXK48324R-1	
IC05	8-752-365-06	IC CXK48324R-1	
IC06	8-759-362-96	IC MB81C1501PFTN-G-D-ER	
IC07	8-752-376-16	IC CXD2036Q-TL	
IC301	8-752-357-86	IC CXD2300Q-T4	
IC302	8-752-370-77	IC CXD2030R-TL	
IC501	8-759-925-76	IC SN74HC08ANS	
IC502	8-752-370-85	IC CXD2032Q-TL	

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC503	8-752-357-62	IC CXD2307R	
IC504	8-759-350-07	IC SDA9205-2GEG (KV-28WS3B)	
IC505	8-759-033-43	IC MC74F244M	
IC506	8-759-033-43	IC MC74F244M	
IC507	8-759-925-74	IC SN74HC04ANS	
IC509	8-759-033-43	IC MC74F244M	
IC510	8-759-034-91	IC MC74HC74AF (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
IC511	8-759-925-76	IC SN74HC08ANS (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
IC512	8-759-034-91	IC MC74HC74AF (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
IC513	8-759-034-91	IC MC74HC74AF (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
IC1301	8-759-368-89	IC TDA8395T/N2	
IC1302	8-752-070-58	IC CXA1860Q-T4	
IC1305	8-759-032-11	IC MC74HC04AF	
IC3701	8-759-362-96	IC MB81C1501PFTN-G-D-ER	
IC3702	8-759-362-96	IC MB81C1501PFTN-G-D-ER	
IC3703	8-759-362-96	IC MB81C1501PFTN-G-D-ER	
IC3704	8-752-337-04	IC CXD1176Q	
IC3705	8-752-334-49	IC CXD1172AM	
IC3706	8-759-262-03	IC MC14577CF	
IC3707	8-759-011-65	IC MC74HC4053F	
IC3708	8-759-352-06	IC CXD2031R-65846GJ0153EN	
IC3709	8-759-288-85	IC TDA4665T-T	
IC3710	8-759-925-74	IC SN74HC04ANS	
IC3712	8-759-100-94	IC UPC358G2	
IC3713	8-759-183-35	IC TDA9160A (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
IC3714	8-759-009-02	IC MC14046BF	

< COIL >

REF.NO.	PART NO.	DESCRIPTION	REMARK
L01	1-408-397-00	INDUCTOR 1UH	
L02	1-408-397-00	INDUCTOR 1UH	
L301	1-408-403-00	INDUCTOR 3.3UH	
L302	1-408-403-00	INDUCTOR 3.3UH	
L303	1-408-403-00	INDUCTOR 3.3UH	
L304	1-414-248-11	INDUCTOR 2.2UH	
L305	1-414-248-11	INDUCTOR 2.2UH	
L306	1-408-403-00	INDUCTOR 3.3UH	
L307	1-408-397-00	INDUCTOR 1UH	
L308	1-408-397-00	INDUCTOR 1UH	
L501	1-408-397-00	INDUCTOR 1UH (KV-28WS3B)	
L502	1-408-397-00	INDUCTOR 1UH (KV-28WS3B)	
L503	1-414-243-11	INDUCTOR 1UH	
L504	1-414-243-11	INDUCTOR 1UH	
L505	1-414-243-11	INDUCTOR 1UH	
L506	1-408-397-00	INDUCTOR 1UH	
L507	1-408-397-00	INDUCTOR 1UH	
L508	1-408-397-00	INDUCTOR 1UH	
L509	1-408-397-00	INDUCTOR 1UH	
L510	1-408-397-00	INDUCTOR 1UH (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
L511	1-408-397-00	INDUCTOR 1UH (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
L512	1-408-405-00	INDUCTOR 4.7UH	
L513	1-408-405-00	INDUCTOR 4.7UH	
L1406	1-408-403-00	INDUCTOR 3.3UH	
L3700	1-408-403-00	INDUCTOR 3.3UH	
L3702	1-408-403-00	INDUCTOR 3.3UH	
L3703	1-408-403-00	INDUCTOR 3.3UH	
L3704	1-408-403-00	INDUCTOR 3.3UH	
L3705	1-408-403-00	INDUCTOR 3.3UH	
L3706	1-414-253-91	INDUCTOR 5.6UH	
L3707	1-408-403-00	INDUCTOR 3.3UH	
L3708	1-408-403-00	INDUCTOR 3.3UH	

< TRANSISTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q01	8-729-216-22	TRANSISTOR 2SA1162-G	
Q02	8-729-216-22	TRANSISTOR 2SA1162-G	
Q03	8-729-216-22	TRANSISTOR 2SA1162-G	
Q04	8-729-216-22	TRANSISTOR 2SA1162-G	
Q05	8-729-216-22	TRANSISTOR 2SA1162-G	
Q06	8-729-216-22	TRANSISTOR 2SA1162-G	
Q301	8-729-216-22	TRANSISTOR 2SA1162-G	
Q302	8-729-216-22	TRANSISTOR 2SA1162-G	
Q303	8-729-216-22	TRANSISTOR 2SA1162-G	
Q304	8-729-216-22	TRANSISTOR 2SA1162-G	
Q305	8-729-216-22	TRANSISTOR 2SA1162-G	
Q306	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q307	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q308	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q309	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q351	8-729-920-74	TRANSISTOR 2SC2412K-QR (KV-28WS3B)	
Q352	8-729-920-74	TRANSISTOR 2SC2412K-QR (KV-28WS3B)	
Q353	8-729-920-74	TRANSISTOR 2SC2412K-QR (KV-28WS3B)	
Q354	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28WS3B)	
Q356	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28WS3B)	
Q358	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28WS3B)	
Q359	8-729-900-53	TRANSISTOR DTC114EK	
Q360	8-729-901-04	TRANSISTOR DTA114EK	
Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q502	8-729-216-22	TRANSISTOR 2SA1162-G	
Q503	8-729-216-22	TRANSISTOR 2SA1162-G	
Q504	8-729-216-22	TRANSISTOR 2SA1162-G	
Q505	8-729-119-78	TRANSISTOR 2SC2785-HFE (KV-28WS3B)	
Q506	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
Q507	8-729-216-22	TRANSISTOR 2SA1162-G	
Q508	8-729-216-22	TRANSISTOR 2SA1162-G	
Q509	8-729-216-22	TRANSISTOR 2SA1162-G	
Q510	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28WS3B)	
Q1301	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1302	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1303	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1304	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1305	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1306	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1307	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1316	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1317	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1318	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1319	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3700	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3701	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3703	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3704	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3706	8-729-900-53	TRANSISTOR DTC114EK	
Q3708	8-729-920-74	TRANSISTOR 2SC2412K-QR	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
Q3709	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3710	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3712	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3713	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3714	8-729-027-43	TRANSISTOR DTC114EKA	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
		< RESISTOR >	
R01	1-216-629-11	METAL CHIP 120 0.50% 1/10W	
R02	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
R03	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
R04	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R05	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R06	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R07	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W	
R08	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W	
R09	1-216-662-11	METAL CHIP 3K 0.50% 1/10W	
R24	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	(KV-28WS3B)
R25	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	(KV-28WS3B)
R26	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	
R27	1-216-047-91	METAL GLAZE 820 5% 1/10W	
R28	1-216-047-91	METAL GLAZE 820 5% 1/10W	
R29	1-216-047-91	METAL GLAZE 820 5% 1/10W	
R36	1-216-631-11	METAL CHIP 150 0.50% 1/10W	
R37	1-216-631-11	METAL CHIP 150 0.50% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-627-11	METAL CHIP 100 0.50% 1/10W	(KV-28WS3B)
R38	1-216-631-11	METAL CHIP 150 0.50% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-627-11	METAL CHIP 100 0.50% 1/10W	(KV-28WS3B)
R53	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R56	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3B)
R57	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R58	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R59	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R60	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R61	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R63	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R301	1-216-022-00	METAL GLAZE 75 5% 1/10W	
R302	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R303	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R304	1-208-767-11	METAL CHIP 240 0.50% 1/10W	
R305	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R306	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R307	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R308	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R309	1-216-664-11	METAL CHIP 3.6K 0.50% 1/10W	
R310	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R311	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R312	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R313	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W	
R314	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R315	1-208-767-11	METAL CHIP 240 0.50% 1/10W	
R316	1-216-022-00	METAL GLAZE 75 5% 1/10W	
R317	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R318	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R319	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R320	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R321	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R322	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R323	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R324	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R325	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R326	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R327	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R328	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R329	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R330	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R331	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R332	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R333	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R334	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R335	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R336	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R337	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R338	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R339	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R356	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(KV-28WS3B)
R357	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R358	1-216-645-11	METAL CHIP 560 0.50% 1/10W	(KV-28WS3B)
R359	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(KV-28WS3B)
R360	1-216-645-11	METAL CHIP 560 0.50% 1/10W	(KV-28WS3B)
R361	1-216-645-11	METAL CHIP 560 0.50% 1/10W	(KV-28WS3B)
R362	1-208-800-11	METAL CHIP 5.6K 0.50% 1/10W	(KV-28WS3B)
R363	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W	(KV-28WS3B)
R364	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W	(KV-28WS3B)
R365	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(KV-28WS3B)
R367	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(KV-28WS3B)
R368	1-216-660-11	METAL CHIP 2.4K 0.50% 1/10W	(KV-28WS3B)
R372	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(KV-28WS3B)
R373	1-216-660-11	METAL CHIP 2.4K 0.50% 1/10W	(KV-28WS3B)
R374	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R375	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R376	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R377	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R378	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R501	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R502	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R505	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R506	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R507	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R508	1-216-632-11	METAL CHIP	160	0.50%	1/10W	
R509	1-216-631-11	METAL CHIP	150	0.50%	1/10W	
R510	1-216-631-11	METAL CHIP	150	0.50%	1/10W	
R511	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R512	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R513	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R514	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R515	1-216-091-00	METAL GLAZE	56K	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R516	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R519	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R520	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R521	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R522	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R523	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R524	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R528	1-216-025-91	METAL GLAZE	100	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R529	1-218-756-11	METAL CHIP	150K	0.50%	1/10W	
R530	1-216-047-91	METAL GLAZE	820	5%	1/10W	
R531	1-216-047-91	METAL GLAZE	820	5%	1/10W	
R532	1-216-295-91	METAL GLAZE	0	5%	1/10W	(KV-28WS3B)
R535	1-216-047-91	METAL GLAZE	820	5%	1/10W	
R536	1-216-025-91	METAL GLAZE	100	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R537	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R538	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R539	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R540	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R554	1-216-665-11	METAL CHIP	3.9K	0.50%	1/10W	(KV-28WS3B)
R555	1-216-666-11	METAL CHIP	4.3K	0.50%	1/10W	(KV-28WS3B)
R556	1-216-631-11	METAL CHIP	150	0.50%	1/10W	(KV-28WS3B)
R557	1-216-603-11	METAL CHIP	10	0.50%	1/10W	(KV-28WS3B)
R558	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R559	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R560	1-216-121-91	METAL GLAZE	1M	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R561	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R562	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R563	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R564	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R565	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R566	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3B)
R567	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R568	1-216-073-00	METAL GLAZE	10K	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R571	1-216-017-91	METAL GLAZE	47	5%	1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R575	1-216-033-00	METAL GLAZE	220	5%	1/10W	(KV-28WS3B)
R577	1-216-295-91	METAL GLAZE	0	5%	1/10W	(KV-28WS3B)
R579	1-216-631-11	METAL CHIP	150	0.50%	1/10W	(KV-28WS3B)
R580	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R582	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R583	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1301	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1302	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1303	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R1304	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1305	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R1306	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R1307	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R1308	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1310	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R1311	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R1312	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R1313	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1314	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R1315	1-208-767-11	METAL CHIP	240	0.50%	1/10W	
R1316	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1317	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R1318	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1319	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R1320	1-216-648-11	METAL CHIP	750	0.50%	1/10W	
R1321	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1322	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R1323	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1324	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R1325	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R1326	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R1327	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1328	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1329	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1330	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1331	1-216-650-11	METAL CHIP	910	0.50%	1/10W	
R1332	1-216-626-11	METAL CHIP	91	0.50%	1/10W	
R1366	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R1367	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1368	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1369	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R1370	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1371	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1372	1-216-105-91	METAL GLAZE	220K	5%	1/10W	
R1373	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R1374	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1375	1-216-049-91	METAL GLAZE	1K	5%	1/10W	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
R1376	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R1377	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3701	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3702	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3703	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R3704	1-216-619-11	METAL CHIP 47 0.50% 1/10W	
R3705	1-216-619-11	METAL CHIP 47 0.50% 1/10W	
R3706	1-216-619-11	METAL CHIP 47 0.50% 1/10W	
R3707	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3708	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3709	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3710	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R3711	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3712	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3713	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3714	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R3715	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R3716	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R3717	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3718	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3719	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3720	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3722	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3723	1-216-041-00	METAL GLAZE 470 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3B)
R3724	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3725	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R3726	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R3727	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R3729	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3730	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3731	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3732	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3734	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3735	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3736	1-216-089-91	METAL GLAZE 47K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3737	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3738	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3739	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3740	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3741	1-216-121-91	METAL GLAZE 1M 5% 1/10W	
R3742	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3743	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R3745	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-28WS3B)
R3746	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3748	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3749	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R3750	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R3753	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3754	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3755	1-216-079-00	METAL GLAZE 18K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3756	1-216-025-91	METAL GLAZE 100 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3757	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)

REF.NO.	PART NO.	DESCRIPTION	REMARK
R3758	1-216-025-91	METAL GLAZE 100 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3759	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3760	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R3761	1-216-079-00	METAL GLAZE 18K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3762	1-216-097-91	METAL GLAZE 100K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3763	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3768	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3769	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3770	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3771	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3772	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3773	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3774	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3775	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3776	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3777	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3778	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
R3779	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
R3780	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
R3781	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3782	1-216-065-91	METAL GLAZE 4.7K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
R3783	1-216-059-91	METAL GLAZE 2.7K 5% 1/10W	

< CRYSTAL >

REF.NO.	PART NO.	DESCRIPTION	REMARK
X301	1-760-957-91	VIBRATOR, CRYSTAL (17.8MHz)	
X302	1-527-722-00	OSCILLATOR, CRYSTAL (14.3MHz)	
X3700	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
X3701	1-567-505-11	OSCILLATOR, CRYSTAL (3.58MHz)	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)

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*A-1620-068-A B2 BOARD, COMPLETE (KV-28WS3B)
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< CAPACITOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
C9001	1-104-665-11	ELECT 100MF 20% 25V	
C9002	1-163-038-91	CERAMIC CHIP 0.1MF 25V	
C9003	1-163-038-91	CERAMIC CHIP 0.1MF 25V	
C9004	1-164-337-11	CERAMIC CHIP 2.2MF 16V	
C9005	1-163-038-91	CERAMIC CHIP 0.1MF 25V	
C9006	1-163-096-00	CERAMIC CHIP 13PF 5% 50V	
C9007	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C9008	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C9009	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C9010	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C9013	1-164-222-11	CERAMIC CHIP 0.22MF 25V	
C9014	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C9015	1-126-964-11	ELECT 10MF 20% 50V	
C9016	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C9017	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION			REMARK
C9018	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C9019	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C9020	1-104-665-11	ELECT	100MF	20%	25V
C9021	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C9022	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C9023	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C9024	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C9025	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C9026	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C9027	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C9028	1-124-925-11	ELECT	2.2MF	20%	50V
		< CONNECTOR >			
CN9001	1-695-300-11	CONNECTOR, BOARD TO BOARD 20P			
		< DIODE >			
D9002	8-719-914-43	DIODE DAN202K			
D9003	8-719-401-92	DIODE MA3082M-TX			
		< IC >			
IC9001	8-759-343-40	IC TDA9145/N3D			
IC9002	8-759-360-44	IC TEA2130			
		< TRANSISTOR >			
Q9001	8-729-920-74	TRANSISTOR 2SC2412K-QR			
Q9002	8-729-920-74	TRANSISTOR 2SC2412K-QR			
Q9003	8-729-920-74	TRANSISTOR 2SC2412K-QR			
Q9004	8-729-901-04	TRANSISTOR DTA114EK			
Q9005	8-729-216-22	TRANSISTOR 2SA1162-G			
Q9006	8-729-901-04	TRANSISTOR DTA114EK			
Q9007	8-729-920-74	TRANSISTOR 2SC2412K-QR			
Q9008	8-729-920-74	TRANSISTOR 2SC2412K-QR			
		< RESISTOR >			
JR9001	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR9002	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9003	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9004	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9005	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9006	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9007	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9008	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9009	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9010	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9011	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR9012	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR9013	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR9014	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR9015	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9016	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR9017	1-216-295-91	METAL GLAZE	0	5%	1/10W
R9001	1-216-025-91	METAL GLAZE	100	5%	1/10W
R9002	1-216-033-00	METAL GLAZE	220	5%	1/10W
R9003	1-216-033-00	METAL GLAZE	220	5%	1/10W
R9004	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R9005	1-216-025-91	METAL GLAZE	100	5%	1/10W
R9006	1-216-025-91	METAL GLAZE	100	5%	1/10W
R9007	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R9008	1-216-041-00	METAL GLAZE	470	5%	1/10W
R9009	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R9010	1-216-262-00	METAL GLAZE	470K	5%	1/8W
R9011	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R9012	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W
R9013	1-216-208-00	METAL GLAZE	2.7K	5%	1/8W
R9014	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W
R9015	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R9016	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W
R9017	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R9018	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R9019	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R9020	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R9021	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R9022	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R9023	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R9024	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R9025	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R9026	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R9027	1-216-105-91	METAL GLAZE	220K	5%	1/10W
R9028	1-216-041-00	METAL GLAZE	470	5%	1/10W
R9029	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R9030	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W
R9031	1-216-025-91	METAL GLAZE	100	5%	1/10W
R9032	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R9033	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R9034	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R9035	1-249-403-11	CARBON	68	5%	1/4W F
R9036	1-216-037-00	METAL GLAZE	330	5%	1/10W
R9037	1-216-037-00	METAL GLAZE	330	5%	1/10W
R9038	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R9039	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R9040	1-216-073-00	METAL GLAZE	10K	5%	1/10W
		< CRYSTAL >			
X9001	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)			
X9002	1-567-505-11	OSCILLATOR, CRYSTAL (3.58MHz)			
X9003	1-567-888-11	OSCILLATOR, CERAMIC (500KHz)			

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*A-1624-052-A F1 BOARD, COMPLETE
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		< CONNECTOR >	
CN0007	⚠	*1-580-844-11	PIN, CONNECTOR (POWER)
CN0622	⚠	*1-695-292-11	PIN, CONNECTOR (POWER)
		< FUSE >	
F651	⚠	1-576-232-21	FUSE (H.B.C.) (5A 250V)
		1-533-230-11	HOLDER, FUSE; F651
		< SWITCH >	
S651	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)

Q

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1626-004-A	Q BOARD, COMPLETE (KV-28WS3A/28WS3D/ ****************** 28WS3E/28WS3K/ 28WS3U)	
		< CAPACITOR >	
C3501	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C3504	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C3505	1-164-326-91	CERAMIC CHIP 0.47MF	10% 25V
C3507	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3508	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C3509	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C3510	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C3511	1-124-903-11	ELECT 1MF	20% 50V
C3515	1-126-964-11	ELECT 10MF	20% 50V
C3517	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C3519	1-126-964-11	ELECT 10MF	20% 50V
C3521	1-126-964-11	ELECT 10MF	20% 50V
C3522	1-126-964-11	ELECT 10MF	20% 50V
C3523	1-126-964-11	ELECT 10MF	20% 50V
C3524	1-126-964-11	ELECT 10MF	20% 50V
C3525	1-104-664-11	ELECT 47MF	20% 25V
C3526	1-104-664-11	ELECT 47MF	20% 25V
C3527	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3528	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3529	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3530	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3531	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C3533	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3534	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3535	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C3536	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3537	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3538	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3539	1-126-964-11	ELECT 10MF	20% 50V
C3540	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3541	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3542	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3543	1-126-964-11	ELECT 10MF	20% 50V
C3544	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C3545	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C3546	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C3547	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3549	1-126-964-11	ELECT 10MF	20% 50V
C3550	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3552	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3553	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3554	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3555	1-126-964-11	ELECT 10MF	20% 50V
C3556	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3557	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3558	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3559	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3560	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3562	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3563	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3565	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3568	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3569	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3570	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3571	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3572	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3573	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3574	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3575	1-126-964-11	ELECT 10MF	20% 50V
C3577	1-126-964-11	ELECT 10MF	20% 50V
C3578	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3579	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3580	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3581	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3582	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3583	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3584	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3585	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3586	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3587	1-126-964-11	ELECT 10MF	20% 50V
C3588	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3589	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3590	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3591	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3592	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3593	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3594	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3595	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3596	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3597	1-126-964-11	ELECT 10MF	20% 50V
C3598	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3599	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3602	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3603	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3604	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3605	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3608	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3609	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3610	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3614	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3615	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3616	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3617	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3618	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3619	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3620	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3621	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3622	1-126-964-11	ELECT 10MF	20% 50V
C3623	1-126-964-11	ELECT 10MF	20% 50V
C3624	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3625	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3626	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3628	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3629	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3631	1-126-964-11	ELECT 10MF	20% 50V
C3632	1-126-964-11	ELECT 10MF	20% 50V
C3633	1-126-964-11	ELECT 10MF	20% 50V
C3634	1-126-964-11	ELECT 10MF	20% 50V
C3635	1-126-964-11	ELECT 10MF	20% 50V
C3637	1-126-964-11	ELECT 10MF	20% 50V
C3640	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C3641	1-104-664-11	ELECT 47MF	20% 25V
		< CONNECTOR >	
CN3502	1-695-300-11	CONNECTOR, BOARD TO BOARD 20P	

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN3503	1-695-513-21	SOCKET, CONNECTOR 30P	
		< FERRITE BEAD >	
FB3501	1-414-234-11	INDUCTOR, FERRITE BEAD	
FB3502	1-414-234-11	INDUCTOR, FERRITE BEAD	
FB3550	1-414-234-11	INDUCTOR, FERRITE BEAD	
		< ENCAPSULATED FILTER >	
FL3502	1-233-436-21	FILTER, LOW PASS	
FL3503	1-233-435-11	FILTER, LOW PASS	
FL3504	1-236-071-11	ENCAPSULATED COMPONENT	
FL3505	1-236-071-11	ENCAPSULATED COMPONENT	
FL3506	1-236-071-11	ENCAPSULATED COMPONENT	
FL3507	1-236-071-11	ENCAPSULATED COMPONENT	
FL3509	1-236-071-11	ENCAPSULATED COMPONENT	
FL3512	1-236-071-11	ENCAPSULATED COMPONENT	
FL3513	1-236-071-11	ENCAPSULATED COMPONENT	
FL3514	1-236-071-11	ENCAPSULATED COMPONENT	
FL3515	1-236-071-11	ENCAPSULATED COMPONENT	
FL3516	1-236-071-11	ENCAPSULATED COMPONENT	
		< IC >	
IC3501	8-759-350-07	IC SDA9205-2GEG	
IC3503	8-759-366-14	IC CY7C291A-35JC-AE302	
IC3504	8-759-033-02	IC MC74F04M	
IC3506	8-759-034-75	IC MC74F157AM-T2	
IC3507	8-759-034-75	IC MC74F157AM-T2	
IC3508	8-759-034-75	IC MC74F157AM-T2	
IC3509	8-759-034-75	IC MC74F157AM-T2	
IC3510	8-759-034-75	IC MC74F157AM-T2	
IC3511	8-759-351-57	IC TMC57110-D77527PB	
IC3512	8-759-358-55	IC P83C652FBA/526	
IC3513	8-759-351-56	IC TMC57120-D77523PJ	
IC3514	8-759-297-80	IC MSM514222B-30GS-KR1	
IC3515	8-759-297-80	IC MSM514222B-30GS-KR1	
IC3516	8-759-350-05	IC MSM548333TS-K	
IC3517	8-759-350-05	IC MSM548333TS-K	
IC3520	8-759-355-73	IC EPM7032LC44-15-AE301	
IC3521	8-759-233-64	IC TC74HCU04AF	
IC3525	8-759-503-65	IC SN74BCT245NS-T5R	
IC3526	8-759-503-65	IC SN74BCT245NS-T5R	
IC3527	8-759-503-65	IC SN74BCT245NS-T5R	
IC3528	8-759-034-75	IC MC74F157AM-T2	
		< COIL >	
L3501	1-408-409-00	INDUCTOR 10UH	
L3502	1-410-209-51	INDUCTOR CHIP 27UH	
L3503	1-408-409-00	INDUCTOR 10UH	
L3504	1-408-401-00	INDUCTOR 2.2UH	
L3505	1-408-401-00	INDUCTOR 2.2UH	
L3506	1-408-401-00	INDUCTOR 2.2UH	
L3507	1-408-401-00	INDUCTOR 2.2UH	
L3508	1-410-213-51	INDUCTOR CHIP 56UH	
L3509	1-408-401-00	INDUCTOR 2.2UH	
L3510	1-408-401-00	INDUCTOR 2.2UH	
L3511	1-408-401-00	INDUCTOR 2.2UH	
		< TRANSISTOR >	
Q3501	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3502	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3503	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3504	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3505	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q3506	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3507	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q3512	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q3513	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
JR3501	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R3501	1-216-665-11	METAL CHIP 3.9K 0.50% 1/10W	
R3502	1-216-666-11	METAL CHIP 4.3K 0.50% 1/10W	
R3503	1-216-631-11	METAL CHIP 150 0.50% 1/10W	
R3504	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3506	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R3508	1-216-603-11	METAL CHIP 10 0.50% 1/10W	
R3512	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3513	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3516	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3517	1-216-645-11	METAL CHIP 560 0.50% 1/10W	
R3518	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W	
R3519	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3522	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3523	1-216-645-11	METAL CHIP 560 0.50% 1/10W	
R3524	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W	
R3525	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3528	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3529	1-216-645-11	METAL CHIP 560 0.50% 1/10W	
R3530	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R3531	1-208-800-11	METAL CHIP 5.6K 0.50% 1/10W	
R3535	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3536	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R3537	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R3538	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R3539	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R3542	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R3544	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3545	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3546	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3547	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3548	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3549	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3550	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3551	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3552	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R3553	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3554	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3555	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3556	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3557	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3558	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3559	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3560	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3561	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3562	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3563	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3564	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R3565	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R3566	1-216-017-91	METAL GLAZE 47 5% 1/10W	

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R3567	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3568	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3569	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3570	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3571	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3572	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3573	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3574	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3575	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3577	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R3579	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R3580	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R3582	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R3583	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R3584	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3585	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3586	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3587	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3588	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3589	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3590	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3591	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3592	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3593	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3594	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3595	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3596	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3597	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3598	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3599	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3600	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3601	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R3602	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3603	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3604	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3605	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3606	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3607	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3608	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3609	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3610	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3611	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3612	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3613	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3614	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3615	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R3616	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R3617	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R3618	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3619	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3620	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3621	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3622	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3623	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3625	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3626	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3627	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3628	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3629	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3630	1-216-001-00	METAL GLAZE	10	5%	1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R3631	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3632	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3633	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R3634	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R3637	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3638	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3639	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3640	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3641	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3642	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3643	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3644	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3646	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3647	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R3649	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R3650	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R3651	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R3652	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R3661	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R3663	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R3664	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R3672	1-216-660-11	METAL CHIP	2.4K	0.50%	1/10W	
R3673	1-216-660-11	METAL CHIP	2.4K	0.50%	1/10W	
R3674	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3675	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3676	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3677	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3678	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3679	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3680	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3681	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3682	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3683	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3684	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3685	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3686	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3687	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3688	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3689	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3690	1-216-631-11	METAL CHIP	150	0.50%	1/10W	
R3698	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R3700	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3701	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R3702	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R3703	1-216-043-91	METAL GLAZE	560	5%	1/10W	

< CRYSTAL >

X3502	1-578-774-11	VIBRATOR, CRYSTAL (12MHz)	

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*A-1630-368-A A1 BOARD, COMPLETE
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< CAPACITOR >

C1236	1-164-348-11	CERAMIC CHIP	0.12MF	10%	25V
C1237	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1238	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C1239	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C1240	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V

REF.NO.	PART NO.	DESCRIPTION			REMARK
C1241	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1242	1-163-014-00	CERAMIC CHIP	0.0027MF	5%	50V
C1243	1-163-014-00	CERAMIC CHIP	0.0027MF	5%	50V
C1244	1-163-010-11	CERAMIC CHIP	0.0012MF	10%	50V
C1245	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1246	1-126-965-11	ELECT	22MF	20%	50V
C1247	1-126-933-11	ELECT	100MF	20%	16V
C1248	1-164-348-11	CERAMIC CHIP	0.12MF	10%	25V
C1249	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1250	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C1251	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C1252	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V
C1253	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1254	1-163-014-00	CERAMIC CHIP	0.0027MF	5%	50V
C1255	1-163-014-00	CERAMIC CHIP	0.0027MF	5%	50V
C1256	1-163-010-11	CERAMIC CHIP	0.0012MF	10%	50V
C1257	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1264	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3201	1-124-925-11	ELECT	2.2MF	20%	50V
C3202	1-126-934-11	ELECT	220MF	20%	16V
C3203	1-107-682-11	CERAMIC CHIP	1MF	10%	16V
C3204	1-126-964-11	ELECT	10MF	20%	50V
C3205	1-126-964-11	ELECT	10MF	20%	50V
C3206	1-126-964-11	ELECT	10MF	20%	50V
C3207	1-126-964-11	ELECT	10MF	20%	50V
C3208	1-107-682-11	CERAMIC CHIP	1MF	10%	16V
C3209	1-136-159-00	FILM	0.033MF	5%	50V
C3210	1-136-480-11	FILM	0.0015MF	5%	100V
C3211	1-136-159-00	FILM	0.033MF	5%	50V
C3212	1-126-934-11	ELECT	220MF	20%	16V
C3215	1-126-934-11	ELECT	220MF	20%	16V
C3216	1-126-964-11	ELECT	10MF	20%	50V
C3217	1-126-964-11	ELECT	10MF	20%	50V
C3218	1-126-964-11	ELECT	10MF	20%	50V
C3219	1-126-964-11	ELECT	10MF	20%	50V
C3220	1-126-934-11	ELECT	220MF	20%	16V
C3221	1-107-682-11	CERAMIC CHIP	1MF	10%	16V
C3222	1-107-682-11	CERAMIC CHIP	1MF	10%	16V
C3223	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C3224	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C3225	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3226	1-131-351-00	TANTALUM	4.7MF	10%	35V
C3227	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3228	1-131-351-00	TANTALUM	4.7MF	10%	35V
C3229	1-164-492-11	CERAMIC CHIP	0.15MF	10%	16V
C3230	1-131-350-00	TANTALUM	3.3MF	10%	35V
C3231	1-164-492-11	CERAMIC CHIP	0.15MF	10%	16V
C3232	1-164-492-11	CERAMIC CHIP	0.15MF	10%	16V
C3233	1-131-350-00	TANTALUM	3.3MF	10%	35V
C3234	1-164-492-11	CERAMIC CHIP	0.15MF	10%	16V
C3235	1-131-351-00	TANTALUM	4.7MF	10%	35V
C3236	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3237	1-131-351-00	TANTALUM	4.7MF	10%	35V
C3238	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3239	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C3240	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C3241	1-126-967-11	ELECT	47MF	20%	16V
C3242	1-137-189-91	FILM	0.18MF	5%	50V
C3243	1-126-964-11	ELECT	10MF	20%	50V
C3244	1-163-137-00	CERAMIC CHIP	680PF	5%	50V

REF.NO.	PART NO.	DESCRIPTION			REMARK
C3245	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3246	1-126-964-11	ELECT	10MF	20%	50V
C3247	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3248	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3249	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C3250	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3251	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3252	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C3253	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C3254	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C3255	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C3256	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C3257	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V
C3258	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V
C3259	1-126-933-11	ELECT	100MF	20%	16V
C3260	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3265	1-136-157-00	FILM	0.022MF	5%	50V
C3266	1-136-161-00	FILM	0.047MF	5%	50V
C3267	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3268	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3269	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C3270	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V

< CONNECTOR >

CN1101	1-695-300-11	CONNECTOR, BOARD TO BOARD 20P			

< FERRITE BEAD >

FB1104	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH			

< IC >

IC1205	8-759-257-64	IC TDA7317			
IC3201	8-759-248-74	IC LA2785			
IC3202	8-759-341-23	IC LV1011			
IC3203	8-759-266-65	IC TDA6622-5			

< COIL >

L1203	1-408-419-00	INDUCTOR	68UH		
L3201	1-408-419-00	INDUCTOR	68UH		
L3202	1-408-419-00	INDUCTOR	68UH		

< TRANSISTOR >

Q1203	8-729-901-01	TRANSISTOR DTC144EK			
Q1204	8-729-901-01	TRANSISTOR DTC144EK			

< RESISTOR >

JR3201	1-216-295-91	METAL GLAZE	0	5%	1/10W
JR3202	1-216-295-91	METAL GLAZE	0	5%	1/10W
R1131	1-216-041-00	METAL GLAZE	470	5%	1/10W
R1132	1-216-041-00	METAL GLAZE	470	5%	1/10W
R1246	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R1247	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R1248	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R1249	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R1250	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R1251	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R1252	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R1253	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R1254	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R1255	1-216-089-91	METAL GLAZE	47K	5%	1/10W

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REF.NO.	PART NO.	DESCRIPTION	REMARK
R1256	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1257	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1258	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1259	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1260	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1261	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1262	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1263	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1264	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1265	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1266	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1267	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1268	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1269	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1270	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1271	1-216-033-00	METAL GLAZE 220 5%	1/10W
R3201	1-216-689-11	METAL GLAZE 39K 5%	1/10W
R3202	1-216-228-00	METAL GLAZE 18K 5%	1/8W
R3204	1-216-025-91	METAL GLAZE 100 5%	1/10W
R3205	1-216-025-91	METAL GLAZE 100 5%	1/10W
R3206	1-216-033-00	METAL GLAZE 220 5%	1/10W
R3207	1-216-033-00	METAL GLAZE 220 5%	1/10W
R3208	1-216-025-91	METAL GLAZE 100 5%	1/10W
R3209	1-216-025-91	METAL GLAZE 100 5%	1/10W
R3210	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R3211	1-208-854-11	METAL CHIP 1M 0.50%	1/10W

< CRYSTAL >

REF.NO.	PART NO.	DESCRIPTION	REMARK
X3201	1-579-125-11	VIBRATOR, CERAMIC	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1632-296-A	A BOARD, COMPLETE (KV-28WS3A/28WS3D) *****************	
	*A-1632-337-A	A BOARD, COMPLETE (KV-28WS3B) *****************	
	*A-1632-339-A	A BOARD, COMPLETE (KV-28WS3E) *****************	
	*A-1632-340-A	A BOARD, COMPLETE (KV-28WS3K) *****************	
	*A-1632-336-A	A BOARD, COMPLETE (KV-28WS3U) *****************	
	4-201-023-01	SPACER, INSULATING	
	4-202-373-01	SPRING, IC	
	4-382-854-11	SCREW (M3X10), P, SW (+)	

< CAPACITOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
C001	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C002	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C004	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C007	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C008	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C009	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C010	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C012	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C014	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C016	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C017	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C018	1-124-925-11	ELECT 2.2MF 20%	50V
C019	1-126-965-11	ELECT 22MF 20%	50V
C020	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C022	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C023	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C024	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C025	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C026	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C027	1-164-346-11	CERAMIC CHIP 1MF	16V
C028	1-126-964-11	ELECT 10MF 20%	50V
C032	1-163-185-00	CERAMIC CHIP 150PF 5%	50V
C042	1-164-346-11	CERAMIC CHIP 1MF	16V
C072	1-126-934-11	ELECT 220MF 20%	16V
C081	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C103	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C104	1-126-934-11	ELECT 220MF 20%	16V
C105	1-126-965-11	ELECT 22MF 20%	50V
C106	1-124-927-11	ELECT 4.7MF 20%	50V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
	1-126-933-11	ELECT 100MF 20%	16V
			(KV-28WS3B)
C107	1-126-934-11	ELECT 220MF 20%	16V
C120	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C201	1-163-078-11	CERAMIC CHIP 0.033MF 10%	25V
C202	1-163-078-11	CERAMIC CHIP 0.033MF 10%	25V
C203	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C204	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C205	1-126-964-11	ELECT 10MF 20%	50V
C206	1-164-161-11	CERAMIC CHIP 0.0022MF 10%	50V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
C207	1-137-613-11	FILM 0.0018MF 2%	100V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
C208	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C209	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C210	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C211	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C212	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C213	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C214	1-126-967-11	ELECT 47MF 20%	50V
C215	1-126-967-11	ELECT 47MF 20%	50V
C218	1-163-809-11	CERAMIC CHIP 0.047MF 10%	25V
C219	1-163-809-11	CERAMIC CHIP 0.047MF 10%	25V
C220	1-124-925-11	ELECT 2.2MF 20%	50V
C221	1-124-925-11	ELECT 2.2MF 20%	50V
C222	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C223	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C224	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C225	1-107-823-11	CERAMIC CHIP 0.47MF 10%	16V
C226	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C227	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C228	1-124-925-11	ELECT 2.2MF 20%	50V
C229	1-124-925-11	ELECT 2.2MF 20%	50V
C230	1-136-177-00	FILM 1MF 5%	50V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
C231	1-136-177-00	FILM 1MF 5%	50V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
C232	1-164-182-11	CERAMIC CHIP 0.0033MF 10%	50V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
C233	1-163-007-11	CERAMIC CHIP 680PF 10%	50V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
C234	1-126-964-11	ELECT 10MF 20%	50V
C235	1-126-964-11	ELECT 10MF 20%	50V
C236	1-126-933-11	ELECT 100MF 20%	16V
C237	1-104-665-11	ELECT 100MF 20%	25V

REF.NO.	PART NO.	DESCRIPTION		REMARK
C238	1-136-165-00	FILM 0.1MF	5%	50V
C239	1-136-165-00	FILM 0.1MF	5%	50V
C240	1-104-665-11	ELECT 100MF	20%	25V
C242	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C243	1-126-967-11	ELECT 47MF	20%	16V
C248	1-163-185-00	CERAMIC CHIP 150PF	5%	50V
		(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)		
C251	1-136-165-00	FILM 0.1MF	5%	50V
C252	1-136-165-00	FILM 0.1MF	5%	50V
C253	1-126-967-11	ELECT 47MF	20%	16V
C256	1-126-967-11	ELECT 47MF	20%	16V
C258	1-126-934-11	ELECT 220MF	20%	16V
C259	1-107-714-11	ELECT 10MF	20%	16V
C260	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C261	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C262	1-126-967-11	ELECT 47MF	20%	16V
C263	1-126-967-11	ELECT 47MF	20%	16V
C264	1-136-165-00	FILM 0.1MF	5%	50V
C265	1-136-165-00	FILM 0.1MF	5%	50V
C266	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C267	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C268	1-136-165-00	FILM 0.1MF	5%	50V
C269	1-136-165-00	FILM 0.1MF	5%	50V
C270	1-126-953-11	ELECT 2200MF	20%	35V
C271	1-126-953-11	ELECT 2200MF	20%	35V
C272	1-126-953-11	ELECT 2200MF	20%	35V
C273	1-126-953-11	ELECT 2200MF	20%	35V
C274	1-136-165-00	FILM 0.1MF	5%	50V
C275	1-136-165-00	FILM 0.1MF	5%	50V
C280	1-126-967-11	ELECT 47MF	20%	16V
C281	1-126-940-11	ELECT 330MF	20%	16V
C283	1-164-489-91	CERAMIC CHIP 0.22MF	10%	16V
C284	1-164-489-91	CERAMIC CHIP 0.22MF	10%	16V
C285	1-164-489-91	CERAMIC CHIP 0.22MF	10%	16V
C351	1-126-964-11	ELECT 10MF	20%	50V
C352	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C355	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C356	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C357	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C358	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C359	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C360	1-164-326-91	CERAMIC CHIP 0.47MF		16V
		(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3R/ 28WS3U)		
	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
				(KV-28WS3B)
C361	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C362	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C364	1-126-964-11	ELECT 10MF	20%	50V
C365	1-124-903-11	ELECT 1MF	20%	50V
C366	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C367	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C368	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C369	1-124-903-11	ELECT 1MF	20%	50V
C370	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C372	1-126-964-11	ELECT 10MF	20%	50V
C373	1-126-964-11	ELECT 10MF	20%	50V
C374	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C580	1-126-964-11	ELECT 10MF	20%	50V
C581	1-124-902-00	ELECT 0.47MF	20%	50V

REF.NO.	PART NO.	DESCRIPTION		REMARK
C582	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C585	1-126-967-11	ELECT 47MF	20%	16V
C586	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C587	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C588	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C589	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C590	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C591	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C592	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C593	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C594	1-126-967-11	ELECT 47MF	20%	50V
C681	1-104-664-11	ELECT 47MF	20%	25V
C682	1-126-967-11	ELECT 47MF	20%	16V
C683	1-104-664-11	ELECT 47MF	20%	25V
C684	1-104-664-11	ELECT 47MF	20%	25V
C685	1-126-967-11	ELECT 47MF	20%	16V
C686	1-126-967-11	ELECT 47MF	20%	16V
C687	1-126-967-11	ELECT 47MF	20%	16V
C688	1-126-967-11	ELECT 47MF	20%	16V
C689	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C690	1-126-967-11	ELECT 47MF	20%	16V
C691	1-126-967-11	ELECT 47MF	20%	16V
C692	1-126-967-11	ELECT 47MF	20%	16V
C693	1-126-967-11	ELECT 47MF	20%	16V
C1007	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C1008	1-126-967-11	ELECT 47MF	20%	16V

< C1101 ~ C1132 FITTED ON >
< KV-28WS3B/28WS3E/28WS3U >

REF.NO.	PART NO.	DESCRIPTION		REMARK
C1101	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C1102	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C1103	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C1104	1-126-964-11	ELECT 10MF	20%	50V
C1105	1-126-964-11	ELECT 10MF	20%	50V
C1106	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C1107	1-126-967-11	ELECT 47MF	20%	16V
C1108	1-126-964-11	ELECT 10MF	20%	50V
C1110	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C1111	1-164-489-11	CERAMIC CHIP 0.22MF	10%	16V
C1112	1-164-489-11	CERAMIC CHIP 0.22MF	10%	16V
C1113	1-163-137-00	CERAMIC CHIP 680PF	5%	50V
C1114	1-126-967-11	ELECT 47MF	20%	16V
C1115	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C1116	1-126-967-11	ELECT 47MF	20%	16V
C1117	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C1118	1-126-967-11	ELECT 47MF	20%	16V
C1119	1-126-967-11	ELECT 47MF	20%	16V
C1120	1-163-137-00	CERAMIC CHIP 680PF	5%	50V
C1121	1-164-299-11	CERAMIC CHIP 0.22MF	10%	25V
C1122	1-126-967-11	ELECT 47MF	20%	16V
C1123	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C1124	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C1125	1-107-823-11	CERAMIC CHIP 0.47MF	10%	16V
C1126	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C1127	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C1128	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C1129	1-162-568-11	CERAMIC CHIP 0.33MF		25V
C1130	1-124-903-11	ELECT 1MF	20%	50V
C1131	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C1132	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V

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REF.NO.	PART NO.	DESCRIPTION			REMARK
		< C1137 - C1157 FITTED ON > < KV-28WS3B/28WS3E/28WS3U >			
C1133	1-126-967-11	ELECT	47MF	20%	16V
C1134	1-126-964-11	ELECT	10MF	20%	50V
C1135	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C1136	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1137	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C1139	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1142	1-164-299-11	CERAMIC CHIP	0.22MF	10%	25V
C1143	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1147	1-126-967-11	ELECT	47MF	20%	16V
C1148	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C1150	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1151	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1152	1-126-967-11	ELECT	47MF	20%	16V
C1157	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1501	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C1502	1-124-903-11	ELECT	1MF	20%	50V
C1504	1-124-122-11	ELECT	100MF	20%	50V
C1505	1-137-371-11	FILM	0.015MF	5%	50V
C1506	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C1507	1-106-383-00	MYLAR	0.047MF	10%	100V
C1508	1-137-423-11	MYLAR	0.15MF	10%	100V
C1509	1-126-964-11	ELECT	10MF	20%	50V
C1510	1-130-789-00	FILM	1MF	5%	100V
C1511	1-126-941-11	ELECT	470MF	20%	25V
C1512	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1513	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1514	1-126-941-11	ELECT	470MF	20%	25V
C1518	1-124-927-11	ELECT	4.7MF	20%	50V
C1520	1-126-964-11	ELECT	10MF	20%	50V
C1521	1-107-698-11	ELECT	10MF	20%	25V
C1522	1-126-967-11	ELECT	47MF	20%	50V
C1523	1-104-664-11	ELECT	47MF	20%	25V
C1531	1-110-501-11	CERAMIC CHIP	0.33MF	10%	16V
C1532	1-126-964-11	ELECT	10MF	20%	50V
C1533	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C1534	1-164-489-11	CERAMIC CHIP	0.22MF	10%	16V
C1535	1-110-501-11	CERAMIC CHIP	0.33MF	10%	16V
C1537	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1539	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1540	1-126-967-11	ELECT	47MF	20%	50V
C1541	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C1542	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1543	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1544	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1545	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C1546	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1547	1-164-695-11	CERAMIC CHIP	0.0022MF	5%	50V
C1548	1-163-055-00	CERAMIC CHIP	0.0047MF	10%	50V
C1549	1-163-055-00	CERAMIC CHIP	0.0047MF	10%	50V
C1550	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1551	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1552	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1553	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1554	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1555	1-126-967-11	ELECT	47MF	20%	50V
C1556	1-124-122-11	ELECT	100MF	20%	50V
C1558	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C1559	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C1560	1-124-902-00	ELECT	0.47MF	20%	50V
C1561	1-104-760-11	CERAMIC CHIP	0.047MF	10%	50V
C1562	1-163-117-91	CERAMIC CHIP	100P	5%	50V
C1563	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C1564	1-164-336-11	CERAMIC CHIP	0.33MF		25V
C1567	1-124-903-11	ELECT	1MF	20%	50V
C1568	1-164-344-11	CERAMIC CHIP	0.068MF	10%	25V
C1569	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C1570	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1571	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C1585	1-124-903-11	ELECT	1MF	20%	50V
C1586	1-124-902-00	ELECT	0.47MF	20%	50V
C1587	1-126-967-11	ELECT	47MF	20%	50V
C1588	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C1589	1-162-587-11	CERAMIC CHIP	0.039MF	10%	25V
C1590	1-164-346-11	CERAMIC CHIP	1MF		16V
C1591	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C1593	1-126-964-11	ELECT	10MF	20%	50V
C2001	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C2002	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C2003	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C2004	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C2005	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C2007	1-126-965-11	ELECT	22MF	20%	50V
C2008	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C2010	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C2011	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C2012	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C2013	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C2014	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C2016	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C2017	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C2019	1-126-965-11	ELECT	22MF	20%	50V
C2020	1-164-346-11	CERAMIC CHIP	1MF		16V
C2024	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C2025	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C2027	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C2031	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2032	1-126-933-11	ELECT	100MF	20%	16V
C2701	1-126-964-11	ELECT	10MF	20%	50V
C2702	1-126-967-11	ELECT	47MF	20%	16V
C2706	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
		< CONNECTOR >			
CN0001	*1-564-520-11	PLUG, CONNECTOR 5P			
CN0002	*1-568-878-51	PIN, CONNECTOR 3P			
CN0101	1-695-297-11	CONNECTOR, BOARD TO BOARD 20P			
CN0102	1-695-299-11	CONNECTOR, BOARD TO BOARD 50P			
CN0103	1-764-608-11	CONNECTOR, BOARD TO BOARD 8P			
CN0104	1-764-608-11	CONNECTOR, BOARD TO BOARD 8P			
CN0105	1-764-608-11	CONNECTOR, BOARD TO BOARD 8P			
CN0106	1-695-298-11	CONNECTOR, BOARD TO BOARD 40P			
CN0107	1-695-297-11	CONNECTOR, BOARD TO BOARD 20P			
CN0108	1-695-297-11	CONNECTOR, BOARD TO BOARD 20P			
CN0109	*1-900-900-67	PIN, CONNECTOR 1P			
CN0111	*1-568-882-51	PIN, CONNECTOR 7P			
CN0113	*1-568-879-11	PIN, CONNECTOR 4P			
CN0114	*1-564-511-11	PLUG, CONNECTOR 8P			
CN0115	*1-568-881-51	PIN, CONNECTOR 6P			

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN0151	1-568-882-51	PIN, CONNECTOR 7P	
CN0152	*1-568-882-51	PIN, CONNECTOR 7P (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3U)	
	*1-564-510-11	PLUG, CONNECTOR 7P (KV-28WS3K)	
		< RF DISTRIBUTOR >	
CP101	1-251-372-11	DISTRIBUTOR, RF	
		< DIODE >	
D001	8-719-027-82	DIODE MA3039H-TX	
D003	8-719-914-42	DIODE DA204K	
D068	8-719-914-44	DIODE DAP202K	
D069	8-719-914-44	DIODE DAP202K	
D071	8-719-109-89	DIODE RD5.6ESB2	
D073	8-719-109-89	DIODE RD5.6ESB2	
D075	8-719-914-43	DIODE DAN202K	
D077	8-719-914-43	DIODE DAN202K	
D078	8-719-109-89	DIODE RD5.6ESB2	
D079	8-719-109-89	DIODE RD5.6ESB2	
D101	8-719-982-27	DIODE MTZJ-33C	
D201	8-719-914-42	DIODE DA204K (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
D251	8-719-991-33	DIODE 1SS133T-77	
D252	8-719-991-33	DIODE 1SS133T-77	
D253	8-719-991-33	DIODE 1SS133T-77	
D254	8-719-991-33	DIODE 1SS133T-77	
D255	8-719-914-43	DIODE DAN202K	
D256	8-719-991-33	DIODE 1SS133T-77	
D257	8-719-991-33	DIODE 1SS133T-77	
D258	8-719-991-33	DIODE 1SS133T-77	
D259	8-719-991-33	DIODE 1SS133T-77	
D260	8-719-991-33	DIODE 1SS133T-77	
D261	8-719-991-33	DIODE 1SS133T-77	
D262	8-719-991-33	DIODE 1SS133T-77	
D263	8-719-914-43	DIODE DAN202K	
D265	8-719-914-42	DIODE DA204K	
D351	8-719-991-33	DIODE 1SS133T-77	
D581	8-719-914-43	DIODE DAN202K	
D1001	8-719-914-44	DIODE DAP202K	
D1002	8-719-914-43	DIODE DAN202K	
D1003	8-719-914-43	DIODE DAN202K	
D1101	8-719-914-43	DIODE DAN202K (KV-28WS3B/28WS3E/28WS3U)	
D1102	8-719-820-71	DIODE 1SV214 (KV-28WS3B/28WS3E/28WS3U)	
D1503	8-719-908-03	DIODE GP08D	
D1504	8-719-110-41	DIODE RD15ESB2	
D1505	8-719-914-43	DIODE DAN202K	
D1510	8-719-914-42	DIODE DA204K	
D1511	8-719-982-03	DIODE MTZJ-3.6A	
D1530	8-719-914-43	DIODE DAN204K	
D1533	8-719-400-75	DIODE MA3091	
D1534	8-719-914-43	DIODE DAN202K	
D1536	8-719-105-82	DIODE RD5.1M-B2	
D1539	8-719-914-42	DIODE DA204K	
D1542	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D1543	8-719-914-42	DIODE DA204K	
D1544	8-719-914-42	DIODE DA204K	
D1545	8-719-914-42	DIODE DA204K	
D2001	8-719-036-58	DIODE MA3030-H(TX)	
D2004	8-719-914-43	DIODE DAN202K	
D2701	8-719-914-44	DIODE DAP202K	

REF.NO.	PART NO.	DESCRIPTION	REMARK
		< IC >	
IC001	8-759-351-92	IC SDA30C164-2GEG	
IC002	8-759-353-82	IC TMS27PC020-15FML	
IC072	8-759-184-27	IC ST24C16CB1	
IC201	8-759-348-87	IC TDA6812-2MGEG	
IC202	8-759-502-21	IC TDA2822M	
IC251	8-759-190-89	IC TDA7265	
IC261	8-759-190-89	IC TDA7265	
IC351	8-759-183-36	IC TDA8443B	
IC352	8-759-085-51	IC NJM2284M	
IC572	8-752-070-54	IC CXA1839Q-T6	
IC681	8-759-518-68	IC PQ12RF21	
IC682	8-759-513-71	IC PQ05RF21	
IC683	8-759-908-15	IC TL431CLP	
IC684	8-759-195-63	IC PQ09RE11	
IC685	8-759-510-52	IC TEA7605	
IC686	8-759-513-71	IC PQ05RF21 (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
IC1001	8-752-869-17	IC CXP85112B-622Q-TL	
IC1101	8-759-251-58	IC SAA7283GP (KV-28WS3B/28WS3E/28WS3U)	
IC1501	8-759-192-71	IC STV9379	
IC1531	8-752-068-39	IC CXA1840S	
IC2001	8-759-248-91	IC SDA9086-5	
IC2002	8-759-337-48	IC SDA5273P-C26-GEG	
IC2003	8-759-188-60	IC MB81C4256A-70PSZG	
IC2701	8-759-603-37	IC M5216P	
		< IF BLOCK >	
IFB101	1-473-191-11	IF BLOCK (KV-28WS3A/28WS3D/28WS3E)	
	1-467-573-13	IF BLOCK (KV-28WS3B)	
	1-467-873-12	IF BLOCK (KV-28WS3K)	
	1-473-190-11	IF BLOCK (KV-28WS3U)	
		< COIL >	
L001	1-408-421-00	INDUCTOR 100UH	
L101	1-408-413-00	INDUCTOR 22UH	
L102	1-408-413-00	INDUCTOR 22UH	
L201	1-407-500-00	INDUCTOR 4.7MMH	
L1002	1-408-397-00	INDUCTOR 1UH	
L1101	1-412-004-31	INDUCTOR CHIP 6.8UH (KV-28WS3B/28WS3E/28WS3U)	
L1102	1-408-419-00	INDUCTOR 68UH (KV-28WS3B/28WS3E/28WS3U)	
L1103	1-408-419-00	INDUCTOR 68UH (KV-28WS3B/28WS3E/28WS3U)	
L1501	1-412-524-11	INDUCTOR 8.2UH	
L1531	1-412-537-31	INDUCTOR 100UH	
L2001	1-410-674-31	INDUCTOR 82UH	
L2002	1-410-397-21	FERRITE BEAD INDUCTOR 1.1UH	
		< IC LINK >	
PS681 ⚠	1-532-637-91	LINK, IC (ICP-N25) 1.0A	
		< TRANSISTOR >	
Q002	8-729-216-22	TRANSISTOR 2SA1162-G	
Q005	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q006	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q007	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q008	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q102	8-729-027-52	TRANSISTOR DTC124EKA-T146	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
Q103	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q106	8-729-821-00	TRANSISTOR 2SA1207	
Q107	8-729-255-12	TRANSISTOR 2SC2551-O	
Q110	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q203	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
Q252	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q253	8-729-216-22	TRANSISTOR 2SA1162-G	
Q254	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q255	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q256	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q257	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q258	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q281	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q282	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q351	8-729-216-22	TRANSISTOR 2SA1162-G	
Q352	8-729-216-22	TRANSISTOR 2SA1162-G	
Q571	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q581	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q681	8-729-032-65	TRANSISTOR 2SD2396H	
Q1001	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1105	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3B/28WS3E/28WS3U)
Q1106	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3B/28WS3E/28WS3U)
Q1107	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3B/28WS3E/28WS3U)
Q1108	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3B/28WS3E/28WS3U)
Q1505	8-729-931-45	TRANSISTOR IRF614	
Q1506	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1507	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1508	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q1510	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1511	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q1512	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q1531	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1532	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1533	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1544	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1545	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1547	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1548	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1549	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q2001	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q2002	8-729-920-74	TRANSISTOR 2SC2412KQR	
Q2004	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q2005	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q2006	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q2008	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q2701	8-729-920-74	TRANSISTOR 2SC2412K-QR	

< RESISTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR001	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR002	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR101	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR102	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR201	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3K)
JR202	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3K)
JR279	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR280	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1013	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1501	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR2002	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R001	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R002	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R003	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R004	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R006	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R007	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R008	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R009	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R010	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R012	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R013	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R014	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R016	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R017	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R018	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R020	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R021	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R025	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R028	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R029	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R030	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R031	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R032	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R033	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R034	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R035	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R036	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R037	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R038	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R047	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R048	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R049	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R050	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R051	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R052	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R054	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R062	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R067	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R068	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R069	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R072	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R073	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R074	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R077	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R083	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R085	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R101	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R102	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R105	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R108	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R109	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R110	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R111	1-216-089-91	METAL GLAZE 47K 5% 1/10W	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
R115	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R116	1-215-901-00	METAL OXIDE 33K 5% 2W	F
R121	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R124	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R125	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R127	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R130	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R131	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R201	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	
R202	1-216-657-11	METAL CHIP 1.8K 0.50% 1/10W	
R203	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	
R204	1-216-657-11	METAL CHIP 1.8K 0.50% 1/10W	
R205	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
R206	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R207	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R208	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R209	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R210	1-247-734-11	CARBON 39 5% 1/2W	
R211	1-247-734-11	CARBON 39 5% 1/2W	
R212	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R213	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R214	1-216-025-91	METAL GLAZE 100 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
R218	1-249-389-11	CARBON 4.7 5% 1/4W	F
R219	1-249-389-11	CARBON 4.7 5% 1/4W	F
R221	1-216-091-00	METAL GLAZE 56K 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
R222	1-249-389-11	CARBON 4.7 5% 1/4W	F
R241	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
R242	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R243	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R244	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R246	1-216-097-91	METAL GLAZE 100K 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
R247	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R248	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R249	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R250	1-216-065-91	METAL GLAZE 4.7K 5% 1/10W	
R251	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R253	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R257	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R258	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R259	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R260	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R261	1-216-065-91	METAL GLAZE 4.7K 5% 1/10W	
R262	1-216-357-00	METAL OXIDE 4.7 5% 1W	F
R263	1-216-357-00	METAL OXIDE 4.7 5% 1W	F
R264	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R265	1-216-079-91	METAL GLAZE 18K 5% 1/10W	
R266	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R267	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R268	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R269	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R270	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R271	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R272	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R273	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R274	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R275	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R276	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R277	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R278	1-216-103-91	METAL GLAZE 180K 5% 1/10W	
R279	1-216-103-91	METAL GLAZE 180K 5% 1/10W	
R280	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R282	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R284	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R285	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R286	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R287	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R288	1-216-065-91	METAL GLAZE 4.7K 5% 1/10W	
R289	1-216-357-00	METAL OXIDE 4.7 5% 1W	F
R290	1-216-357-00	METAL OXIDE 4.7 5% 1W	F
R291	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R292	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R293	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R294	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R295	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R296	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R297	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R298	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R299	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R351	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R352	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R353	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R354	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R355	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R356	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R357	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R358	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R359	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3E/28WS3K/28WS3U)	
R360	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3B)	
R361	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
R362	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3B)	
R363	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
R364	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
R365	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
R366	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	
R367	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3B)	
R368	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-28WS3B)	
R369	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R371	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R372	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R373	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R375	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R376	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R377	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R378	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R379	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R380	1-216-049-91	METAL GLAZE 1K 5% 1/10W	

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R384	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R385	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R386	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R575	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R576	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R578	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R579	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R580	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R581	1-216-685-11	METAL CHIP	27K	0.50%	1/10W	
R582	1-216-047-91	METAL GLAZE	820	5%	1/10W	
R583	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R584	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R587	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R588	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R681	1-216-471-11	METAL OXIDE	27	5%	3W	F
R682	1-249-407-11	CARBON	150	5%	1/4W	
R683	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R684	1-249-419-11	CARBON	1.5K	5%	1/4W	
R685	1-247-807-31	CARBON	100	5%	1/4W	
R1001	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1003	1-216-295-91	METAL GLAZE (KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)	0	5%	1/10W	
R1005	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1006	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1007	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1008	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1009	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1017	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1018	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1019	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1020	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1022	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1023	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1024	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1025	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1026	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1027	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1028	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
		< R1101 - R1151 FITTED ON > < KV-28WS3B/28WS3E/28WS3U >				
R1101	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1102	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1103	1-216-134-00	METAL GLAZE	2.2	5%	1/8W	
R1104	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R1105	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R1106	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1107	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1108	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R1109	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R1110	1-216-150-91	METAL GLAZE	10	5%	1/8W	
R1111	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1112	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1113	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R1114	1-216-158-00	METAL GLAZE	22	5%	1/8W	
R1115	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R1116	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1117	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1118	1-216-134-00	METAL GLAZE	2.2	5%	1/8W	
R1119	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R1124	1-216-089-91	METAL GLAZE	47K	5%	1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1125	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R1132	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R1133	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R1144	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1145	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R1146	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1147	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R1148	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1149	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R1150	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R1151	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1501	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R1502	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R1503	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1504	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1505	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1506	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1509	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1512	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R1513	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R1514	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1515	1-215-455-00	METAL	27K	1%	1/4W	
R1516	1-249-385-11	CARBON	2.2	5%	1/4W	F
R1517	1-216-371-00	METAL OXIDE	1.5	5%	2W	F
R1519	1-216-475-11	METAL OXIDE	120	5%	3W	F
R1520	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R1521	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1522	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1523	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R1524	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R1526	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1527	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R1529	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1531	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1532	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R1534	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R1539	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1540	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R1541	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R1542	1-216-182-00	METAL GLAZE	220	5%	1/8W	
R1543	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1544	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1545	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W	
R1546	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1547	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1548	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R1549	1-216-045-91	METAL GLAZE	680	5%	1/10W	
R1553	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1554	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1558	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R1561	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1562	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1563	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R1564	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R1565	1-216-282-00	METAL GLAZE	3.3M	5%	1/8W	
R1568	1-216-103-91	METAL GLAZE	180K	5%	1/10W	
R1569	1-216-073-00	METAL GLAZE (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3U)	10K	5%	1/10W	
R1570	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R1571	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	

A IF (KV-28WS3A/28WS3D/28WS3E KV-28WS3K/28WS3U)

REF.NO.	PART NO.	DESCRIPTION	REMARK
R1572	1-216-073-00	METAL GLAZE 10K 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3U)	
R1573	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R1574	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R1575	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R1576	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R1577	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R1578	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R1579	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3U)	
R1580	1-215-867-00	METAL OXIDE 470 5% 1W	F
R1581	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R1582	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R1583	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R1584	1-208-822-11	METAL CHIP 47K 0.50% 1/10W	
R1585	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R1586	1-208-806-11	METAL CHIP 10K 0.50% 1/10W	
R1587	1-216-677-11	METAL CHIP 12K 0.50% 1/10W	
R1588	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R1589	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R1590	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R1591	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R1592	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R1593	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R1594	1-216-286-00	METAL GLAZE 4.7M 5% 1/8W	
R1595	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R1597	1-216-109-00	METAL GLAZE 330K 5% 1/10W	
R1601	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R1602	1-216-129-00	METAL GLAZE 2.2M 5% 1/10W	
R1604	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R1605	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R1607	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R1608	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R1609	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R1610	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R1613	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R1615	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1616	1-216-105-91	METAL GLAZE 220K 5% 1/10W	
R1617	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1618	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2002	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R2003	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R2005	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R2007	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R2008	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2009	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R2010	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2011	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R2012	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2013	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2014	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2022	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2023	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R2024	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R2025	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R2026	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R2029	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R2030	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2031	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R2032	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2033	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R2034	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R2035	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R2036	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2037	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2038	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R2039	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R2040	1-216-125-00	METAL GLAZE 1.5M 5% 1/10W	
R2701	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R2702	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R2703	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R2704	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R2705	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R2706	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R2707	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R2708	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R2713	1-216-295-91	METAL GLAZE 0 5% 1/10W	

< THERMISTOR >

TH1501	1-810-035-21	THERMISTOR	

< TUNER >

TU101	1-693-315-21	TUNER (UV1316) (KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)	
	1-693-314-21	TUNER (U1344) (KV-28WS3U)	

< CRYSTAL >

X1001	1-577-082-11	VIBRATOR, CERAMIC (4MHz)	
X1101	1-579-689-21	VIBRATOR, CRYSTAL (8.192MHz) (KV-28WS3B/28WS3E/28WS3U)	
X1531	1-760-895-21	VIBRATOR, CERAMIC (2.69MHz)	
X2001	1-760-551-21	VIBRATOR, CERAMIC (20.5MHz)	

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	1-473-191-11	IF BLOCK (IFH-389WE) (KV-28WS3A/28WS3D/28WS3E) ********************	
	1-467-873-12	IF BLOCK (IFH-389EE) (KV-28WS3K) ********************	
	1-473-190-11	IF BLOCK (IFH-395GB) (KV-28WS3U) ********************	

< CAPACITOR >

C01	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C02	1-164-299-11	CERAMIC CHIP 0.22MF 10% 25V	
C03	1-164-337-11	CERAMIC CHIP 2.2MF 16V	
C04	1-164-337-11	CERAMIC CHIP 2.2MF 16V	
C05	1-126-965-11	ELECT 22MF 20% 50V	
C06	1-126-965-11	ELECT 22MF 20% 50V	
C07	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C08	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C09	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C10	1-163-090-00	CERAMIC CHIP 7PF 0.25PF 50V	
C11	1-164-337-11	CERAMIC CHIP 2.2MF 16V	
C12	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C13	1-124-910-11	ELECT 47MF 20% 50V	
C14	1-124-910-11	ELECT 47MF 20% 50V	
C15	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C16	1-164-346-11	CERAMIC CHIP 1MF 16V	
C17	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C18	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C19	1-164-346-11	CERAMIC CHIP 1MF 16V	

IF (KV-28WS3A/28WS3D/28WS3E KV-28WS3K/28WS3U)

REF.NO.	PART NO.	DESCRIPTION	REMARK
C20	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C21	1-164-222-11	CERAMIC CHIP 0.22MF 25V	
C22	1-124-910-11	ELECT 47MF 20% 50V	
C23	1-124-910-11	ELECT 47MF 20% 50V	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
C24	1-124-910-11	ELECT 47MF 20% 50V	
C25	1-124-910-11	ELECT 47MF 20% 50V	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
C26	1-124-910-11	ELECT 47MF 20% 50V	
C27	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C28	1-124-910-11	ELECT 47MF 20% 50V	
C29	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C30	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C31	1-124-910-11	ELECT 47MF 20% 50V	
C32	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C33	1-163-086-00	CERAMIC CHIP 3PF 0.25PF 50V	
C34	1-124-910-11	ELECT 47MF 20% 50V	
C35	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C36	1-104-666-11	ELECT 220MF 20% 6.3V	(KV-28WS3K)
C37	1-163-249-11	CERAMIC CHIP 82PF 5% 50V	(KV-28WS3K)
C38	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	(KV-28WS3A/28WS3D/28WS3E)
	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	(KV-28WS3K)
	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	(KV-28WS3U)
C39	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	(KV-28WS3K)
		< FILTER >	
CF01	1-760-416-21	FILTER, CERAMIC	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
CF02	1-760-449-11	FILTER, CERAMIC	(KV-28WS3K)
CF03	1-760-450-11	FILTER, CERAMIC	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
CF04	1-760-106-11	TRAP, CERAMIC	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-567-100-00	FILTER, CERAMIC	(KV-28WS3U)
CF05	1-404-134-00	TRAP, CERAMIC (5.5MHZ)	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-409-333-00	TRAP, CERAMIC (6.0MHZ)	(KV-28WS3U)
SAW01	1-760-538-11	FILTER, SURFACE WAVE	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-760-757-11	FILTER, SURFACE WAVE	(KV-28WS3U)
		< CONNECTOR >	
CN01	1-750-919-11	PIN, CONNECTOR (PC BOARD) 10P	
CN02	1-750-919-11	PIN, CONNECTOR (PC BOARD) 10P	
		< DIODE >	
D01	8-719-421-57	DIODE MA73-TX	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
D02	8-719-421-57	DIODE MA73-TX	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-216-296-91	METAL GLAZE 0 5% 1/8W	(KV-28WS3U)
D03	8-719-914-43	DIODE DAN202K	

REF.NO.	PART NO.	DESCRIPTION	REMARK
		< IC >	
IC01	8-759-289-18	IC TDA9813T-T	
IC02	8-759-514-54	IC BA7046	
IC03	8-759-991-41	IC L78L05ACZ-AP	
		< COIL >	
L01	1-408-409-00	INDUCTOR 10UH	(KV-28WS3A/28WS3D/28WS3E)
	1-408-407-00	INDUCTOR 6.8UH	(KV-28WS3K)
	1-408-408-00	INDUCTOR 6.8UH	(KV-28WS3U)
L02	1-403-686-11	COIL	
L03	1-408-419-00	INDUCTOR 68UH	
L04	1-408-419-00	INDUCTOR 68UH	
L05	1-410-790-41	INDUCTOR 0.56UH	
L06	1-408-419-00	INDUCTOR 68UH	
L07	1-408-408-00	INDUCTOR 8.2UH	(KV-28WS3K)
		< TRANSISTOR >	
Q01	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q02	8-729-901-01	TRANSISTOR DTC144EK	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
Q03	8-729-901-01	TRANSISTOR DTC144EK	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
Q04	8-729-216-22	TRANSISTOR 2SA1162-G	
Q05	8-729-216-22	TRANSISTOR 2SA1162-G	
Q06	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q07	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q08	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
Q09	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
Q10	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3K)
		< RESISTOR >	
JR01	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR02	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR03	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR04	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR05	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3U)
JR06	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR10	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR11	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R01	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R02	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R03	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R04	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R05	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R06	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R07	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R08	1-216-039-00	METAL GLAZE 390 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R09	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R10	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R11	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R12	1-216-113-00	METAL GLAZE 470K 5% 1/10W	

IF (KV-28WS3A/28WS3D/28WS3E KV-28WS3K/28WS3U)

IF (KV-28WS3B)

REF.NO.	PART NO.	DESCRIPTION	REMARK
R13	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R14	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R15	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R17	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R18	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R19	1-216-242-91	METAL GLAZE 68K 5% 1/8W	
R20	1-216-033-00	METAL GLAZE 180 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E)
	1-216-031-00	METAL GLAZE 180 5% 1/10W	(KV-28WS3K/28WS3U)
R21	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E)
	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	(KV-28WS3K)
	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	(KV-28WS3U)
R22	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R23	1-218-755-11	METAL CHIP 130K 0.50% 1/10W	
R24	1-216-206-00	METAL GLAZE 2.2K 5% 1/8W	
R25	1-216-107-00	METAL GLAZE 270K 5% 1/10W	
R26	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R27	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R28	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R29	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R30	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R31	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R32	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R33	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R34	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
R35	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R36	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R37	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R38	1-216-095-00	METAL GLAZE 82K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R39	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R40	1-216-075-00	METAL GLAZE 12K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R41	1-216-083-00	METAL GLAZE 27K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R42	1-216-174-00	METAL GLAZE 100 5% 1/8W	
R43	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R44	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R45	1-216-198-91	METAL GLAZE 1K 5% 1/8W	(KV-28WS3A/28WS3D/28WS3E/28WS3U)
	1-216-194-00	METAL GLAZE 680 5% 1/8W	(KV-28WS3K)
R46	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R47	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R48	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R49	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R50	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R51	1-216-039-00	METAL GLAZE 390 5% 1/10W	(KV-28WS3K)
R52	1-216-039-00	METAL GLAZE 390 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
R53	1-216-083-00	METAL GLAZE 27K 5% 1/10W	(KV-28WS3K)
R54	1-216-075-00	METAL GLAZE 12K 5% 1/10W	(KV-28WS3K)
R55	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-28WS3K)
R56	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-28WS3K)
R57	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3U)
	1-216-043-91	METAL GLAZE 560 5% 1/10W	(KV-28WS3K)
R58	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R59	1-216-041-00	METAL GLAZE 470 5% 1/10W	(KV-28WS3K)
R60	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(KV-28WS3U)
R61	1-216-025-91	METAL GLAZE 100 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3U)

< VARIABLE RESISTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV01	1-241-786-11	RES, ADJ, CARBON 22K	

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1-467-573-13 IF BLOCK (IFH-389FX) (KV-28WS3B)
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< CAPACITOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
C101	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C102	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C104	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C111	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C112	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C113	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C114	1-124-925-11	ELECT 2.2MF 20% 50V	
C115	1-124-916-11	ELECT 22MF 20% 50V	
C116	1-124-916-11	ELECT 22MF 20% 50V	
C117	1-163-090-00	CERAMIC CHIP 7PF 0.25PF 50V	
C120	1-124-925-11	ELECT 2.2MF 20% 50V	
C121	1-124-925-11	ELECT 2.2MF 20% 50V	
C122	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C123	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C126	1-163-085-00	CERAMIC CHIP 2PF 0.25PF 50V	
C128	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C131	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C132	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C133	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C134	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C135	1-124-477-11	ELECT 47MF 20% 16V	
C141	1-163-249-11	CERAMIC CHIP 82PF 5% 50V	
C143	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C145	1-124-477-11	ELECT 47MF 20% 16V	
C151	1-124-477-11	ELECT 47MF 20% 16V	
C152	1-124-477-11	ELECT 47MF 20% 16V	
C161	1-124-477-11	ELECT 47MF 20% 16V	
C162	1-124-477-11	ELECT 47MF 20% 16V	
C173	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C174	1-163-227-11	CERAMIC CHIP 10PF 0.5PF 50V	
C175	1-163-227-11	CERAMIC CHIP 10PF 0.5PF 50V	
C177	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C191	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C201	1-164-346-11	CERAMIC CHIP 1MF 16V	
C202	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	

IF (KV-28WS3B)

REF.NO.	PART NO.	DESCRIPTION	REMARK
C203	1-124-477-11	ELECT 47MF 20%	16V
C204	1-164-346-11	CERAMIC CHIP 1MF	16V
C205	1-164-161-11	CERAMIC CHIP 0.0022MF 10%	50V
C206	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C207	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C208	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C302	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C502	1-124-477-11	ELECT 47MF 20%	16V
C503	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C901	1-124-477-11	ELECT 47MF 20%	16V
C902	1-163-059-91	CERAMIC CHIP 0.01MF 10%	50V
		< FILTER >	
CF171	1-567-100-00	FILTER, CERAMIC	
CF172	1-567-101-11	FILTER, CERAMIC	
CF173	1-760-107-21	FILTER, CERAMIC	
CF174	1-760-106-21	FILTER, CERAMIC	
SWF101	1-579-273-11	FILTER, SURFACE WAVE	
SWF103	1-760-244-21	FILTER, SURFACE WAVE	
		< CONNECTOR >	
CN1	1-750-919-11	PIN, CONNECTOR (PC BOARD) 10P	
CN2	1-750-919-11	PIN, CONNECTOR (PC BOARD) 10P	
		< TRIMMER >	
CT101	1-760-154-21	TRAP, CERAMIC	
CT131	1-409-430-11	TRAP, CERAMIC	
		< DIODE >	
D101	8-719-914-43	DIODE DAN202K	
D171	8-719-914-43	DIODE DAN202K	
D201	8-719-914-43	DIODE DAN202K	
		< IC >	
IC1	8-759-193-13	IC TDA9815	
IC2	8-759-514-54	IC BA7046	
IC3	8-752-069-79	IC CXA1875M	
IC4	8-759-710-86	IC NJM2233BM	
		< COIL >	
L101	1-408-419-00	INDUCTOR 68UH	
L102	1-410-985-11	INDUCTOR CHIP 0.22UH	
L131	1-408-407-00	INDUCTOR 6.8UH	
L132	1-410-426-21	INDUCTOR 39UH	
L142	1-408-409-00	INDUCTOR 10UH	
L171	1-408-609-41	INDUCTOR 33UH	
L201	1-408-419-00	INDUCTOR 68UH	
L501	1-408-411-00	INDUCTOR 15UH	
L901	1-408-411-00	INDUCTOR 15UH	
		< TRANSISTOR >	
Q101	8-729-104-80	TRANSISTOR 2SC3355	
Q102	8-729-901-01	TRANSISTOR DTC144EK	
Q104	8-729-901-01	TRANSISTOR DTC144EK	
Q121	8-729-216-22	TRANSISTOR 2SA1162-G	
Q131	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q132	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q141	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q142	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q151	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q152	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q153	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q154	8-729-901-01	TRANSISTOR DTC144EK	
Q161	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q162	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q171	8-729-216-22	TRANSISTOR 2SA1162-G	
Q174	8-729-901-01	TRANSISTOR DTC144EK	
Q175	8-729-901-01	TRANSISTOR DTC144EK	
Q176	8-729-901-01	TRANSISTOR DTC144EK	
Q181	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q191	8-729-216-22	TRANSISTOR 2SA1162-G	
Q201	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
JR101	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR102	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR103	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR104	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR106	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR107	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR109	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR110	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR111	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR112	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR113	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR114	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR115	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR116	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR117	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR118	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR119	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR120	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR121	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR122	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR123	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR124	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR125	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR126	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR127	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR128	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR129	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR130	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR131	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR132	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR133	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR134	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR135	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR136	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR137	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR138	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR140	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR141	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR142	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR143	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR145	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR146	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR150	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR152	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR154	1-216-296-00	METAL GLAZE 0 5% 1/8W	

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

IF (KV-28WS3B) G

REF.NO.	PART NO.	DESCRIPTION				REMARK
JR160	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR161	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR162	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR166	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR167	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R100	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R102	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R103	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R104	1-216-176-11	METAL GLAZE	120	5%	1/8W	
R105	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R106	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R107	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R109	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R111	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R113	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R114	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R115	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R116	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R117	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R118	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R120	1-216-180-00	METAL GLAZE	180	5%	1/8W	
R131	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R133	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R135	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R136	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R137	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R138	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R139	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R140	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R142	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R144	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R145	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R146	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R147	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R148	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R149	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R151	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R152	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R153	1-216-689-11	METAL GLAZE	39K	5%	1/10W	
R154	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R155	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R156	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R161	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R162	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R163	1-216-689-11	METAL GLAZE	39K	5%	1/10W	
R164	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R165	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R166	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R167	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R168	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W	
R169	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R171	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R177	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R178	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R179	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R180	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R181	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R182	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R183	1-216-192-00	METAL GLAZE	560	5%	1/8W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R184	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R185	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R191	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R192	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R193	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R194	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R195	1-216-216-00	METAL GLAZE	5.6K	5%	1/8W	
R201	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R202	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R203	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R204	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R205	1-218-755-11	METAL CHIP	130K	0.50%	1/10W	
R206	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R207	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R208	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R209	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R210	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R211	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R301	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R302	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R303	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R306	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R308	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R309	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R310	1-216-025-00	METAL GLAZE	100	5%	1/10W	

< VARIABLE RESISTOR >

RV111	1-241-786-11	RES, ADJ, CARBON 22K
RV112	1-241-765-11	RES, ADJ, CARBON 22K

< TRANSFORMER >

T111	1-403-686-22	COIL

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*A-1636-009-A G BOARD, COMPLETE
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4-368-683-21	SPRING, TRANSISTOR
4-382-854-11	SCREW (M3X10), P, SW (+)

< CAPACITOR >

C602	1-165-127-11	CERAMIC	470PF	10%	500V
C603	1-165-127-11	CERAMIC	470PF	10%	500V
C604	1-136-171-00	FILM	0.33MF	5%	50V
C605	1-137-399-11	FILM	0.1MF	5%	50V
C606	1-136-171-00	FILM	0.33MF	5%	50V
C607	1-137-399-11	FILM	0.1MF	5%	50V
C608	1-164-625-11	CERAMIC	680PF	10%	500V
C609	1-129-718-00	FILM	0.022MF	5%	630V
C610	1-126-953-11	ELECT	2200MF	20%	35V
C611	1-126-953-11	ELECT	2200MF	20%	35V
C613	1-128-548-11	ELECT	4700MF	20%	25V
C614	1-128-548-11	ELECT	4700MF	20%	25V
C615	1-110-626-11	ELECT	330MF	20%	160V
C616	1-164-625-11	CERAMIC	680PF	10%	500V
C617	1-136-559-11	MYLAR	0.0047MF	10%	400V
C618	1-104-889-91	MYLAR	0.0022MF	10%	400V
C619	1-136-165-00	FILM	0.1MF	5%	50V
C620	1-126-519-12	ELECT	47MF	20%	50V
C621	⚠ 1-136-518-12	FILM	0.47MF	20%	300V
C622	⚠ 1-136-415-51	FILM	0.33MF	20%	300V

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The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.		PART NO.	DESCRIPTION			REMARK
C624	⚠	1-164-503-61	CERAMIC	0.0022MF	20%	400V
C626	⚠	1-164-503-61	CERAMIC	0.0022MF	20%	400V
C627		1-126-940-11	ELECT	330MF	20%	25V
C628		1-126-965-11	ELECT	22MF	20%	50V
C629		1-162-599-12	CERAMIC	0.0047MF		250V
C630		1-162-599-12	CERAMIC	0.0047MF		250V
C631	⚠	1-161-964-91	CERAMIC	0.0047MF		250V
C633		1-125-555-11	ELECT	330MF	20%	400V
C635		1-136-165-00	FILM	0.1MF	5%	50V
C636		1-136-165-00	FILM	0.1MF	5%	50V
C637		1-126-964-11	ELECT	10MF	20%	50V
C638		1-126-964-11	ELECT	10MF	20%	50V
C639		1-126-964-11	ELECT	10MF	20%	50V
C642	⚠	1-162-580-51	CERAMIC	0.01MF		400V
C645		1-102-002-91	CERAMIC	680PF	10%	500V
C646		1-136-171-00	FILM	0.33MF	5%	50V
C647		1-136-171-00	FILM	0.33MF	5%	50V
C650		1-126-964-11	ELECT	10MF	20%	50V
C651		1-136-171-00	FILM	0.33MF	5%	50V
C652		1-136-171-00	FILM	0.33MF	5%	50V
C653		1-136-169-00	FILM	0.22MF	5%	50V
			< CONNECTOR >			
CN0008	⚠	1-508-786-11	PIN, CONNECTOR (5MM PITCH) 2P			
CN0009	⚠	1-508-765-11	PIN, CONNECTOR (5MM PITCH) 3P			
CN0701		*1-564-516-11	PLUG, CONNECTOR 13P			
CN0722	⚠	*1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P			
			< DIODE >			
D601		8-719-510-53	DIODE D4SB60L			
D602		8-719-991-33	DIODE 1SS133T-77			
D603		8-719-109-89	DIODE RD5.6ESB2			
D605		8-719-047-31	DIODE RBA-402L			
D607		8-719-510-12	DIODE D10SC4M			
D608		8-719-510-12	DIODE D10SC4M			
D609		8-719-047-31	DIODE RBA-402L			
D610		8-719-510-64	DIODE S2LA20F			
D612		8-719-911-19	DIODE 1SS119-25			
D613		8-719-911-19	DIODE 1SS119-25			
D614		8-719-911-19	DIODE 1SS119-25			
D615		8-719-911-19	DIODE 1SS119-25			
D616		8-719-911-19	DIODE 1SS119-25			
D617		8-719-911-19	DIODE 1SS119-25			
D618		8-719-911-19	DIODE 1SS119-25			
D619		8-719-911-19	DIODE 1SS119-25			
D620		8-719-911-19	DIODE 1SS119-25			
D621		8-719-911-19	DIODE 1SS119-25			
D622		8-719-510-64	DIODE S2LA20F			
D623		8-719-510-64	DIODE S2LA20F			
D624		8-719-312-39	DIODE R2K-V1			
D625		8-719-911-19	DIODE 1SS119-25			
D626		8-719-911-19	DIODE 1SS119-25			
D627		8-719-911-19	DIODE 1SS119-25			
D628		8-719-911-19	DIODE 1SS119-25			
D630		8-719-991-33	DIODE 1SS133T-77			
D631		8-719-991-33	DIODE 1SS133T-77			
D632		8-719-991-33	DIODE 1SS133T-77			
D633		8-719-991-33	DIODE 1SS133T-77			
D634		8-719-991-33	DIODE 1SS133T-77			

REF.NO.		PART NO.	DESCRIPTION				REMARK
			< FERRITE BEAD >				
FB603		1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH				
FB604		1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH				
			< IC >				
IC601		1-810-051-11	POWER MODULE DM-48				
IC602	⚠	8-749-010-64	PHOTO COUPLER PC123F2				
			< COIL >				
L601		1-412-525-31	INDUCTOR	10UH			
L602		1-412-525-31	INDUCTOR	10UH			
L603		1-412-525-31	INDUCTOR	10UH			
L605		1-412-523-11	INDUCTOR	6.8UH			
L606		1-412-523-11	INDUCTOR	6.8UH			
			< TRANSFORMER >				
LF601	⚠	1-424-436-11	TRANSFORMER, LINE FILTER				
T601	⚠	1-429-255-11	TRANSFORMER, CONVERTER (PIT)				
T602	⚠	1-427-864-11	TRANSFORMER, CONVERTER (PRT)				
			< IC LINK >				
PS601	⚠	1-532-686-91	LINK, IC (ICP-N75) 2.7A				
PS602	⚠	1-532-686-91	LINK, IC (ICP-N75) 2.7A				
PS604	⚠	1-532-686-91	LINK, IC (ICP-N75) 2.7A				
PS605	⚠	1-532-845-21	LINK, IC (PRF4000) 4A				
			< TRANSISTOR >				
Q601		8-729-032-87	TRANSISTOR 2SC4834NP-F09				
Q602		8-729-032-87	TRANSISTOR 2SC4834NP-F09				
Q603		8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q604		8-729-200-21	TRANSISTOR 2SC2500-B				
Q605		8-729-173-38	TRANSISTOR 2SA733-K				
Q606		8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q607		8-729-029-56	TRANSISTOR DTA144ESA				
Q608		8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q610		8-729-173-38	TRANSISTOR 2SA733-K				
Q611		8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q612		8-729-173-38	TRANSISTOR 2SA733-K				
Q613		8-729-030-03	TRANSISTOR DTC144ESA-TP				
Q614		8-729-029-56	TRANSISTOR DTA144ESA				
Q615		8-729-200-21	TRANSISTOR 2SC2500-B				
Q616		8-729-030-03	TRANSISTOR DTC144ESA-TP				
Q617		8-729-029-56	TRANSISTOR DTA144ESA				
			< RESISTOR >				
R601		1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R602		1-247-891-00	CARBON	330K	5%	1/4W	
R603		1-247-891-00	CARBON	330K	5%	1/4W	
R604		1-216-369-00	METAL OXIDE	1	5%	2W	F
R605		1-247-891-00	CARBON	330K	5%	1/4W	
R606		1-247-891-00	CARBON	330K	5%	1/4W	
R607		1-216-369-00	METAL OXIDE	1	5%	2W	F
R608		1-247-887-00	CARBON	220K	5%	1/4W	
R609		1-249-429-11	CARBON	10K	5%	1/4W	F
R610		1-249-419-11	CARBON	1.5K	5%	1/4W	F
R616	⚠	1-205-949-11	WIREWOUND	1.8	5%	10W	
R618	⚠	1-205-949-11	WIREWOUND	1.8	5%	10W	
R619	⚠	1-244-945-91	CARBON	1M	5%	1/2W	
R620	⚠	1-218-265-91	METAL	8.2M	5%	1W	

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION				REMARK
R621	1-249-417-11	CARBON	1K	5%	1/4W	F
R622	1-249-430-11	CARBON	12K	5%	1/4W	
R623	1-249-436-11	CARBON	39K	5%	1/4W	
R624	1-249-425-11	CARBON	4.7K	5%	1/4W	
R625	1-247-815-91	CARBON	220	5%	1/4W	
R626	1-247-863-91	CARBON	22K	5%	1/4W	
R627	1-247-815-91	CARBON	220	5%	1/4W	
R628	1-249-411-11	CARBON	330	5%	1/4W	
R630	1-249-429-11	CARBON	10K	5%	1/4W	
R631	1-215-477-00	METAL	220K	1%	1/4W	
R632	1-249-417-11	CARBON	1K	5%	1/4W	
R633	1-249-429-11	CARBON	10K	5%	1/4W	
R634	1-247-895-91	CARBON	470K	5%	1/4W	
R635	1-249-417-11	CARBON	1K	5%	1/4W	
R636	1-207-905-00	WIREWOUND	0.27	10%	2W	F
R637	1-249-389-11	CARBON	4.7	5%	1/4W	F
R638	1-249-425-11	CARBON	4.7K	5%	1/4W	
R639	1-247-791-91	CARBON	22	5%	1/4W	
R640	1-247-791-91	CARBON	22	5%	1/4W	
R641	1-247-791-91	CARBON	22	5%	1/4W	
R642	1-247-791-91	CARBON	22	5%	1/4W	
R644	1-249-425-11	CARBON	4.7K	5%	1/4W	
R645	1-249-415-11	CARBON	680	5%	1/4W	
R646	1-249-403-11	CARBON	68	5%	1/4W	
R647	1-249-429-11	CARBON	10K	5%	1/4W	
R651	1-215-880-00	METAL OXIDE	10	5%	2W	F
R652	1-247-891-00	CARBON	330K	5%	1/4W	
R653	1-247-891-00	CARBON	330K	5%	1/4W	
R654	1-247-891-00	CARBON	330K	5%	1/4W	
R655	1-247-891-00	CARBON	330K	5%	1/4W	
R656	1-249-439-11	CARBON	68K	5%	1/4W	
R657	1-249-429-11	CARBON	10K	5%	1/4W	
R658	1-249-421-11	CARBON	2.2K	5%	1/4W	
R659	1-249-425-11	CARBON	4.7K	5%	1/4W	
R660	1-249-429-11	CARBON	10K	5%	1/4W	
R661	1-249-421-11	CARBON	2.2K	5%	1/4W	
R662	1-249-421-11	CARBON	2.2K	5%	1/4W	
R663	1-249-429-11	CARBON	10K	5%	1/4W	
R664	1-249-429-11	CARBON	10K	5%	1/4W	
R665	1-249-425-11	CARBON	4.7K	5%	1/4W	

< RELAY >

REF.NO.	PART NO.	DESCRIPTION
RY601	⚠ 1-515-720-31	RELAY

< THERMISTOR >

REF.NO.	PART NO.	DESCRIPTION
THP601	⚠ 1-809-827-11	THERMISTOR, POSITIVE

< VARISTOR >

REF.NO.	PART NO.	DESCRIPTION
VDR601	1-810-977-11	VARISTOR

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*A-1638-070-A C BOARD, COMPLETE

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4-382-854-11 SCREW (M3X10), P, SW (+)

< CAPACITOR >

REF.NO.	PART NO.	DESCRIPTION				REMARK
C701	1-162-114-00	CERAMIC	0.0047MF		2KV	
C703	1-107-651-11	ELECT	4.7MF	20%	250V	
C711	1-101-880-00	CERAMIC	47PF	5%	50V	
C712	1-102-978-00	CERAMIC	220PF	5%	50V	
C713	1-102-980-00	CERAMIC	270PF	5%	50V	
C714	1-102-980-00	CERAMIC	270PF	5%	50V	
C716	1-128-526-11	ELECT	100MF	20%	16V	
C720	1-162-116-00	CERAMIC	680PF	10%	2KV	

< CONNECTOR >

REF.NO.	PART NO.	DESCRIPTION
CN0003	1-695-915-11	TAB (CONTACT)
CN0004	1-695-915-11	TAB (CONTACT)
CN0411	*1-568-882-11	PIN, CONNECTOR 7P
CN0421	*1-508-767-00	PIN, CONNECTOR (5MM PITCH) 5P

< DIODE >

REF.NO.	PART NO.	DESCRIPTION
D701	8-719-991-33	DIODE 1SS133T-77
D702	8-719-991-33	DIODE 1SS133T-77
D703	8-719-991-33	DIODE 1SS133T-77
D704	8-719-991-33	DIODE 1SS133T-77
D705	8-719-991-33	DIODE 1SS133T-77
D706	8-719-991-33	DIODE 1SS133T-77
D707	8-719-991-33	DIODE 1SS133T-77
D708	8-719-991-33	DIODE 1SS133T-77
D709	8-719-991-33	DIODE 1SS133T-77
D714	8-719-109-97	DIODE RD6.8ES-B2
D715	8-719-018-82	DIODE RGP02-20EL-6394

< CRT SOCKET >

REF.NO.	PART NO.	DESCRIPTION
J701	⚠ 1-526-990-14	SOCKET, CRT

< COIL >

REF.NO.	PART NO.	DESCRIPTION	
L701	1-408-413-00	INDUCTOR	22UH
L702	1-408-413-00	INDUCTOR	22UH
L703	1-408-409-00	INDUCTOR	10UH
L704	1-408-413-00	INDUCTOR	22UH
L705	1-408-409-00	INDUCTOR	10UH
L706	1-408-413-00	INDUCTOR	22UH
L707	1-408-409-00	INDUCTOR	10UH

< TRANSISTOR >

REF.NO.	PART NO.	DESCRIPTION
Q701	8-729-326-11	TRANSISTOR 2SC2611
Q702	8-729-326-11	TRANSISTOR 2SC2611
Q703	8-729-326-11	TRANSISTOR 2SC2611
Q704	8-729-326-11	TRANSISTOR 2SC2611
Q705	8-729-326-11	TRANSISTOR 2SC2611
Q706	8-729-326-11	TRANSISTOR 2SC2611
Q707	8-729-200-17	TRANSISTOR 2SA1091-O
Q708	8-729-200-17	TRANSISTOR 2SA1091-O
Q709	8-729-200-17	TRANSISTOR 2SA1091-O
Q710	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q711	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q712	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q714	8-729-255-12	TRANSISTOR 2SC2551-O
Q715	8-729-173-38	TRANSISTOR 2SA733-K

< RESISTOR >

REF.NO.	PART NO.	DESCRIPTION				REMARK
R701	1-202-846-00	SOLID	470K	20%	1/2W	
R702	1-202-838-00	SOLID	100K	20%	1/2W	
R703	1-202-838-00	SOLID	100K	20%	1/2W	
R705	1-249-377-11	CARBON	0.47	5%	1/4W	F
R706	1-249-377-11	CARBON	0.47	5%	1/4W	F

C **D**

REF.NO.	PART NO.	DESCRIPTION				REMARK
R707	1-249-416-11	CARBON	820	5%	1/4W	
R708	1-249-416-11	CARBON	820	5%	1/4W	
R709	1-249-416-11	CARBON	820	5%	1/4W	
R710	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R711	1-202-549-00	SOLID	100	20%	1/2W	
R712	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R713	1-202-549-00	SOLID	100	20%	1/2W	
R714	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R715	1-202-549-00	SOLID	100	20%	1/2W	
R716	1-249-405-11	CARBON	100	5%	1/4W	F
R717	1-249-405-11	CARBON	100	5%	1/4W	F
R718	1-249-405-11	CARBON	100	5%	1/4W	F
R725	1-249-421-11	CARBON	2.2K	5%	1/4W	
R726	1-249-421-11	CARBON	2.2K	5%	1/4W	
R727	1-249-421-11	CARBON	2.2K	5%	1/4W	
R728	1-249-407-11	CARBON	150	5%	1/4W	
R729	1-249-407-11	CARBON	150	5%	1/4W	
R730	1-249-407-11	CARBON	150	5%	1/4W	
R731	1-247-791-91	CARBON	22	5%	1/4W	
R732	1-247-791-91	CARBON	22	5%	1/4W	
R733	1-247-791-91	CARBON	22	5%	1/4W	
R734	1-202-549-00	SOLID	100	20%	1/2W	
R738	1-249-401-11	CARBON	47	5%	1/4W	
R739	1-249-401-11	CARBON	47	5%	1/4W	
R740	1-249-401-11	CARBON	47	5%	1/4W	
R743	1-249-435-11	CARBON	33K	5%	1/4W	
R747	1-216-489-11	METAL OXIDE	27K	5%	3W	F
R749	1-216-489-11	METAL OXIDE	27K	5%	3W	F
R751	1-216-489-11	METAL OXIDE	27K	5%	3W	F
R753	1-249-429-11	CARBON	10K	5%	1/4W	
R767	1-249-437-11	CARBON	47K	5%	1/4W	
R768	1-249-417-11	CARBON	1K	5%	1/4W	

< VARIABLE RESISTOR >

RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M
RV702	1-241-714-11	RES, ADJ, METAL FILM 110M

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*A-1640-182-A D BOARD, COMPLETE
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4-200-399-01 SPACER, IC
4-382-854-11 SCREW (M3X10), P, SW (+)

< CAPACITOR >

C801	1-123-024-21	ELECT	33MF		160V
C802	1-136-207-11	FILM	0.047MF	10%	250V
C804	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C805	1-102-030-00	CERAMIC	330PF	10%	500V
C808	1-162-116-00	CERAMIC	680PF	10%	2KV
C809	1-162-116-00	CERAMIC	680PF	10%	2KV
C810	1-106-367-00	MYLAR	0.01MF	10%	400V
C811	1-109-833-11	FILM	0.0145MF	3%	1.8KV
C812	1-136-759-11	FILM	0.039MF	5%	630V
C813	1-109-844-11	FILM	0.68MF	5%	400V
C814	1-129-702-00	FILM	0.001MF	10%	400V
C816	1-109-844-11	FILM	0.68MF	5%	400V
C817	1-136-759-11	FILM	0.039MF	5%	630V
C819	1-137-102-91	FILM	0.022MF	10%	250V
C822	1-126-967-11	ELECT	47MF	20%	50V
C823	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C824	1-162-117-00	CERAMIC	100PF	10%	500V
C825	1-124-902-00	ELECT	0.47MF	20%	50V
C827	1-102-228-00	CERAMIC	470PF	10%	500V
C835	1-107-655-11	ELECT	47MF	20%	250V
C836	1-102-228-00	CERAMIC	470PF	10%	500V
C837	1-102-228-00	CERAMIC	470PF	10%	500V
C838	1-102-228-00	CERAMIC	470PF	10%	500V
C839	1-126-941-11	ELECT	470MF	20%	25V
C840	1-126-941-11	ELECT	470MF	20%	25V
C841	1-106-375-12	MYLAR	0.022MF	10%	250V
C842	1-136-559-11	FILM	0.0047MF	10%	400V
C863	1-163-017-00	CERAMIC CHIP	0.047MF	10%	50V
C873	1-162-134-11	CERAMIC	470PF	10%	2KV
C874	1-164-645-11	CERAMIC	1000PF	10%	500V
C875	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C892	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V

< CONNECTOR >

CN0009	1-568-878-51	PIN, CONNECTOR 3P
CN0501	*1-564-516-11	PLUG, CONNECTOR 13P
CN0503	1-764-607-11	CONNECTOR, BOARD TO BOARD 8P
CN0504	1-764-607-11	CONNECTOR, BOARD TO BOARD 8P
CN0505	1-764-607-11	CONNECTOR, BOARD TO BOARD 8P
CN0521	*1-508-767-00	PIN, CONNECTOR (5MM PITCH) 5P
DY1	*1-580-798-11	CONNECTOR PIN (DY) 6P

< DIODE >

D802	8-719-979-99	DIODE ERD08M-15
D803	8-719-043-14	DIODE ESAD39M-06C
D804	8-719-971-20	DIODE ERC38-06
D805	8-719-908-03	DIODE GP08D
D806	8-719-908-03	DIODE GP08D
D811	8-719-302-43	DIODE EL1Z
D812	8-719-510-26	DIODE D1NL20
D813	8-719-510-26	DIODE D1NL20
D815	8-719-110-13	DIODE RD9.1ESB2
D872	8-719-914-43	DIODE DAN202K
D874	8-719-914-42	DIODE DA204K

< FERRITE BEAD >

FB801	1-410-396-51	FERRITE BEAD INDUCTOR 0.45UH
FB802	1-410-396-51	FERRITE BEAD INDUCTOR 0.45UH
FB803	1-410-396-51	FERRITE BEAD INDUCTOR 0.45UH

< IC >

IC801	8-759-103-93	IC UPC393C

< COIL >

L802	1-459-474-11	COIL (WITH CORE)
L803	1-459-474-11	COIL (WITH CORE)
L806	1-459-592-11	COIL (WITH CORE) (PMC)
L811	1-459-104-00	COIL, WITH CORE
L813	1-459-104-00	COIL, WITH CORE
L814	1-422-613-11	COIL, AIR CORE
L815	1-410-397-21	FERRITE BEAD INDUCTOR 1.1UH
L816	1-408-947-00	INDUCTOR 2.2MMH

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

< TRANSISTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q801	8-729-119-80	TRANSISTOR 2SC2688-LK	
Q802	8-729-821-07	TRANSISTOR 2SC3997CA	
Q803	8-729-931-45	TRANSISTOR IRF614	

< RESISTOR >

REF.NO.	PART NO.	DESCRIPTION				REMARK
JR502	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR503	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR504	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR505	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R802	1-215-916-00	METAL OXIDE	680	5%	3W	F
R803	1-215-916-00	METAL OXIDE	680	5%	3W	F
R804	1-215-916-00	METAL OXIDE	680	5%	3W	F
R805	1-215-923-00	METAL OXIDE	10K	5%	3W	F
R806	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R807	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R808	1-216-385-11	METAL OXIDE	0.47	5%	3W	F
R809	1-215-880-00	METAL OXIDE	10	5%	2W	F
R810	1-215-914-11	METAL OXIDE	330	5%	3W	F
R811	1-216-434-11	METAL OXIDE	1.8K	5%	1W	F
R817	1-202-972-61	FUSIBLE	1	5%	1/4W	F
R818	1-249-377-11	CARBON	0.47	5%	1/4W	F
R819	1-249-377-11	CARBON	0.47	5%	1/4W	F
R820	1-214-907-00	METAL	56K	1%	1/2W	
R821	1-249-428-11	CARBON	8.2K	5%	1/4W	
R823	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R835	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R837	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R842	1-249-887-11	CARBON	33	5%	1/4W	F
R843	1-202-822-00	SOLID	2.2K	20%	1/2W	
R844	1-249-424-11	CARBON	3.9K	5%	1/4W	
R845	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R850	1-249-389-11	CARBON	4.7	5%	1/4W	F
R851	1-216-399-00	METAL OXIDE	6.8	5%	3W	F
R852	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R853	1-216-119-00	METAL GLAZE	820	5%	1/10W	
R854	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R855	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R856	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R857	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R858	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R859	1-202-822-00	SOLID	2.2K	20%	1/2W	
R894	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R895	1-215-866-11	METAL OXIDE	330	5%	1W	F
R896	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R874	1-216-295-91	METAL GLAZE	0	5%	1/10W	
R897	1-216-295-91	METAL GLAZE	270K	5%	1/10W	
R898	1-216-107-00	METAL GLAZE	0	5%	1/10W	
R899	1-216-105-91	METAL GLAZE	220K	5%	1/10W	

< TRANSFORMER >

REF.NO.	PART NO.	DESCRIPTION	REMARK
T801	1-427-762-11	TRANSFORMER, FERRITE (HDT)	
T803	1-426-897-11	TRANSFORMER, FERRITE (PMT)	
T804	1-429-288-11	COIL, HORIZONTAL LINEARITY	
T805	⚠ 1-453-187-11	TRANSFORMER ASSY, FLYBACK (NX-2661/U2E)	
T806	1-413-059-00	TRANSFORMER, FERRITE (DFT)	

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1644-064-A	VM BOARD, COMPLETE ******************	
	*4-368-683-21	SPRING, TRANSISTOR	
	4-382-854-11	SCREW (M3X10), P, SW (+)	

< CAPACITOR >

REF.NO.	PART NO.	DESCRIPTION				REMARK
C1701	1-126-933-11	ELECT	100MF	20%	16V	
C1702	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C1703	1-126-933-11	ELECT	100MF	20%	16V	
C1704	1-126-933-11	ELECT	100MF	20%	16V	
C1705	1-107-638-11	ELECT	33MF	20%	160V	
C1706	1-104-999-11	FILM	0.1MF	5%	200V	
C1707	1-104-989-91	FILM	0.0022MF	5%	200V	
C1708	1-137-364-11	FILM	0.001MF	5%	50V	
C1709	1-137-364-11	FILM	0.001MF	5%	50V	
C1720	1-107-667-11	ELECT	2.2MF	20%	160V	
C1721	1-104-989-91	FILM	0.0022MF	5%	200V	
C1722	1-128-581-11	ELECT	4.7MF	20%	100V	
C1723	1-161-830-00	CERAMIC	0.0047MF		500V	
C1841	1-130-481-00	FILM	0.0068MF	5%	50V	
C1844	1-106-367-00	MYLAR	0.01MF	10%	400V	
C1845	1-106-220-00	MYLAR	0.1MF	10%	100V	

< CONNECTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN1015	*1-568-881-51	PIN, CONNECTOR 6P	

< DIODE >

REF.NO.	PART NO.	DESCRIPTION	REMARK
D1701	8-719-991-33	DIODE 1SS133T-77	
D1702	8-719-110-88	DIODE RD39ESB2	
D1703	8-719-110-88	DIODE RD39ESB2	
D1840	8-719-302-43	DIODE EL1Z	
D1841	8-719-991-33	DIODE 1SS133T-77	

< COIL >

REF.NO.	PART NO.	DESCRIPTION		REMARK
L1701	1-408-603-41	INDUCTOR	10UH	
L1702	1-408-597-41	INDUCTOR	3.3UH	
L1703	1-408-603-41	INDUCTOR	10UH	
L1841	1-459-075-00	COIL, DYNAMIC CONVERSION CHOKE		
L1843	1-459-104-00	COIL, WITH CORE		

< TRANSISTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q1701	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1702	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1703	8-729-017-05	TRANSISTOR 2SA1837	
Q1704	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1705	8-729-173-38	TRANSISTOR 2SA733-K	
Q1706	8-729-017-06	TRANSISTOR 2SC4793	
Q1707	8-729-255-12	TRANSISTOR 2SC2551-O	
Q1840	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1841	8-729-017-06	TRANSISTOR 2SC4793	

< RESISTOR >

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1701	1-249-417-11	CARBON	1K	5%	1/4W	
R1702	1-249-417-11	CARBON	1K	5%	1/4W	
R1703	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1704	1-249-415-11	CARBON	680	5%	1/4W	
R1705	1-247-791-91	CARBON	22	5%	1/4W	
R1706	1-247-791-91	CARBON	22	5%	1/4W	
R1707	1-247-807-31	CARBON	100	5%	1/4W	
R1708	1-249-410-11	CARBON	270	5%	1/4W	

VM H1 H2 J

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1709	1-249-401-11	CARBON	47	5%	1/4W	
R1710	1-249-401-11	CARBON	47	5%	1/4W	
R1711	1-249-429-11	CARBON	10K	5%	1/4W	
R1712	1-260-311-11	CARBON	39	5%	1/2W	
R1713	1-249-384-11	CARBON	1.8	5%	1/4W	F
R1714	1-249-414-11	CARBON	560	5%	1/4W	F
R1715	1-249-432-11	CARBON	18K	5%	1/4W	
R1716	1-249-417-11	CARBON	1K	5%	1/4W	F
R1717	1-216-476-11	METAL OXIDE	180	5%	3W	F
R1718	1-249-432-11	CARBON	18K	5%	1/4W	
R1719	1-249-384-11	CARBON	1.8	5%	1/4W	F
R1720	1-249-400-11	CARBON	39	5%	1/4W	F
R1721	1-249-414-11	CARBON	560	5%	1/4W	
R1722	1-249-401-11	CARBON	47	5%	1/4W	
R1723	1-249-426-11	CARBON	5.6K	5%	1/4W	
R1841	1-247-871-91	CARBON	47K	5%	1/4W	
R1842	1-247-764-11	CARBON	10K	5%	1/2W	
R1843	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1844	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1847	1-249-887-11	CARBON	33	5%	1/4W	F
R1848	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R1849	1-247-764-11	CARBON	10K	5%	1/2W	

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	*A-1646-098-A	H1 BOARD, COMPLETE ******************				
	1-568-678-11	TERMINAL BLOCK, S 3P				
	1-764-606-11	JACK				
		< CAPACITOR >				
C081	1-102-973-00	CERAMIC	100PF	5%	50V	
C082	1-102-973-00	CERAMIC	100PF	5%	50V	
C083	1-101-005-00	CERAMIC	0.022MF		50V	
C087	1-101-005-00	CERAMIC	0.022MF		50V	
		< CONNECTOR >				
CN1113	*1-568-879-11	PIN, CONNECTOR 4P				
CN1123	*1-564-512-11	PLUG, CONNECTOR 9P				
		< COIL >				
L081	1-408-409-00	INDUCTOR	10UH			
L082	1-408-409-00	INDUCTOR	10UH			
		< RESISTOR >				
R081	1-249-429-11	CARBON	10K	5%	1/4W	
R082	1-249-425-11	CARBON	4.7K	5%	1/4W	
R083	1-249-421-11	CARBON	2.2K	5%	1/4W	
R084	1-249-419-11	CARBON	1.5K	5%	1/4W	
R085	1-249-419-11	CARBON	1.5K	5%	1/4W	
		< SWITCH >				
S081	1-571-532-21	SWITCH, TACTIL				
S082	1-571-532-21	SWITCH, TACTIL				
S083	1-571-532-21	SWITCH, TACTIL				

REF.NO.	PART NO.	DESCRIPTION				REMARK
	*A-1646-099-A	H2 BOARD, COMPLETE ******************				(KV-28WS3A/28WS3D/ 28WS3E/28WS3K/ 28WS3U)
	*A-1646-108-A	H2 BOARD, COMPLETE ******************				(KV-28WS3B)
	*4-374-987-01	GUIDE, LIGHT				
	4-381-686-01	BRACKET (B), LIGHT GUIDE				
		< CONNECTOR >				
CN1214	*1-564-511-11	PLUG, CONNECTOR 8P				
		< DIODE >				
D091	8-719-989-36	DIODE LD-201DU				(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
D092	8-719-948-31	DIODE LD-201VR				
	*4-201-076-01	HOLDER, LED ; D092				
D093	8-719-948-31	DIODE LD-201VR				
	*4-201-076-01	HOLDER, LED ; D093				
D094	8-719-948-31	DIODE LD-201VR				
	*4-201-076-01	HOLDER, LED ; D094				
		< IC >				
IC091	8-741-810-11	IC SBX1810-11				
		< RESISTOR >				
R091	1-249-413-11	CARBON	470	5%	1/4W	

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	*A-1651-073-A	J BOARD, COMPLETE *****************				
		< CAPACITOR >				
C270	1-163-063-00	CERAMIC CHIP	0.022MF		50V	
C271	1-163-063-00	CERAMIC CHIP	0.022MF		50V	
C273	1-101-003-00	CERAMIC	0.0047MF		50V	
C274	1-101-003-00	CERAMIC	0.0047MF		50V	
C275	1-101-005-00	CERAMIC	0.022MF		50V	
C290	1-101-005-00	CERAMIC	0.022MF		50V	
C295	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C296	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C401	1-164-005-11	CERAMIC CHIP	0.47MF		16V	
C402	1-126-933-11	ELECT	100MF	20%	16V	
C403	1-164-005-11	CERAMIC CHIP	0.47MF		16V	
C410	1-126-966-11	ELECT	33MF	20%	50V	
C421	1-126-967-11	ELECT	47MF	20%	50V	
C422	1-126-967-11	ELECT	47MF	20%	50V	
C423	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C424	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C425	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C426	1-126-967-11	ELECT	47MF	20%	16V	
C427	1-164-346-11	CERAMIC CHIP	1MF		16V	
C428	1-164-346-11	CERAMIC CHIP	1MF		16V	
C429	1-126-940-11	ELECT	330MF	20%	16V	
C901	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V	
C902	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V	
C904	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C905	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C906	1-101-004-00	CERAMIC	0.01MF		50V	
C907	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	

REF.NO.	PART NO.	DESCRIPTION	REMARK
C908	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C909	1-101-004-00	CERAMIC 0.01MF	50V
C910	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C911	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C912	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C913	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C914	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C915	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C916	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C917	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C918	1-163-121-00	CERAMIC CHIP 150PF 5%	50V
C919	1-163-121-00	CERAMIC CHIP 150PF 5%	50V
C920	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C921	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C922	1-126-967-11	ELECT 47MF 20%	16V
C923	1-164-346-11	CERAMIC CHIP 1MF	16V
C924	1-126-967-11	ELECT 47MF 20%	16V
C925	1-126-967-11	ELECT 47MF 20%	16V
C926	1-164-346-11	CERAMIC CHIP 1MF	16V
C928	1-126-967-11	ELECT 47MF 20%	16V
C929	1-126-967-11	ELECT 47MF 20%	16V
C930	1-126-967-11	ELECT 47MF 20%	16V
C931	1-164-346-11	CERAMIC CHIP 1MF	16V
C932	1-164-346-11	CERAMIC CHIP 1MF	16V
C933	1-126-967-11	ELECT 47MF 20%	16V
C935	1-126-967-11	ELECT 47MF 20%	16V
C936	1-164-346-11	CERAMIC CHIP 1MF	16V
C937	1-164-346-11	CERAMIC CHIP 1MF	16V
C938	1-126-967-11	ELECT 47MF 20%	16V
		< CONNECTOR >	
CN0806	1-695-301-11	CONNECTOR, BOARD TO BOARD 40P	
CN0807	1-695-300-11	CONNECTOR, BOARD TO BOARD 20P	
CN0823	1-564-524-11	PLUG, CONNECTOR 9P	
CN0824	*1-564-519-11	PLUG, CONNECTOR 4P	
CN0825	*1-564-519-11	PLUG, CONNECTOR 4P	
		< DIODE >	
D401	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D403	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D405	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D406	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D407	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D901	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D902	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D903	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D904	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D905	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D906	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D907	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D908	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D909	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D910	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D911	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D913	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D914	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D915	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D916	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D917	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D919	8-719-923-60	DIODE MTZJ-T-77-9.1A	

REF.NO.	PART NO.	DESCRIPTION	REMARK
D920	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D921	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D922	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D923	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D924	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D925	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D926	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D927	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D928	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D930	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D931	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D932	8-719-923-60	DIODE MTZJ-T-77-9.1A	
		< IC >	
IC401	8-752-068-46	IC CXA1855S	
IC402	8-759-073-00	IC TEA2114	
		< SOCKET >	
J291	1-537-979-11	TERMINAL BOARD	
J292	1-537-978-11	TERMINAL BOARD	
J901	1-695-296-11	TERMINAL BLOCK, S	
J903	1-561-534-41	SOCKET, PIN 21P	
J904	1-695-296-11	TERMINAL BLOCK, S	
J905	1-695-293-11	SOCKET 21P	
J906	1-695-296-11	TERMINAL BLOCK, S	
J907	1-695-293-11	SOCKET 21P	
		< COIL >	
L284	1-402-711-11	INDUCTOR, WIDEBAND	
L291	1-402-711-11	INDUCTOR, WIDEBAND	
L292	1-402-711-11	INDUCTOR, WIDEBAND	
L294	1-402-711-11	INDUCTOR, WIDEBAND	
L295	1-402-711-11	INDUCTOR, WIDEBAND	
L296	1-402-711-11	INDUCTOR, WIDEBAND	
		< TRANSISTOR >	
Q401	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q402	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q403	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q404	8-729-920-74	TRANSISTOR 2SC2412K-QR	
		< RESISTOR >	
JR291	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR292	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR294	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR296	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR297	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR298	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR401	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR402	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR403	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR404	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR405	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR406	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR407	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR408	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR901	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR905	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR907	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR908	1-216-296-91	METAL GLAZE 0 5% 1/8W	

J

REF.NO.	PART NO.	DESCRIPTION				REMARK
JR909	1-216-295-91	METAL GLAZE	0	5%	1/10W	
JR910	1-216-296-91	METAL GLAZE	0	5%	1/8W	
JR911	1-216-295-91	METAL GLAZE	0	5%	1/8W	
R283	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R284	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R285	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R286	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R291	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R292	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R293	1-216-216-00	METAL GLAZE	5.6K	5%	1/8W	
R294	1-216-216-00	METAL GLAZE	5.6K	5%	1/8W	
R401	1-216-158-00	METAL GLAZE	22	5%	1/8W	
R403	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R404	1-216-158-00	METAL GLAZE	22	5%	1/8W	
R405	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R406	1-216-158-00	METAL GLAZE	22	5%	1/8W	
R407	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R410	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R411	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R412	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R413	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R414	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R416	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R417	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R419	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R420	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R421	1-216-171-00	METAL GLAZE	75	5%	1/8W	
R423	1-216-015-00	METAL GLAZE	39	5%	1/10W	
R424	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R425	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R428	1-249-393-11	CARBON	10	5%	1/4W	F
R429	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R430	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R431	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R432	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R433	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R434	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R435	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R436	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R437	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R438	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R439	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R440	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R901	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R902	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R903	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R904	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R905	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R906	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R907	1-216-171-00	METAL GLAZE	75	5%	1/8W	
R908	1-216-171-00	METAL GLAZE	75	5%	1/8W	
R909	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R910	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R911	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R913	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R914	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R915	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R916	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R917	1-216-171-00	METAL GLAZE	75	5%	1/8W	
R918	1-216-171-00	METAL GLAZE	75	5%	1/8W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R919	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R920	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R921	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R922	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R923	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R924	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R925	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R926	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R927	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R928	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R929	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R930	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R931	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R932	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R933	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R934	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R935	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R936	1-216-171-00	METAL GLAZE	75	5%	1/8W	
R937	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R938	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R939	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R940	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R941	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R942	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R943	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R944	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R945	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R946	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R948	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R949	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R950	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R951	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R952	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R953	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R954	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R955	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R956	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R957	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R958	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R959	1-216-674-11	METAL CHIP	9.1K	0.50%	1/10W	
R960	1-216-674-11	METAL CHIP	9.1K	0.50%	1/10W	
R961	1-216-674-11	METAL CHIP	9.1K	0.50%	1/10W	
R967	1-216-171-00	METAL GLAZE	75	5%	1/8W	
R968	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R969	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R970	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R971	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R972	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R973	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R974	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R975	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R976	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R977	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1654-017-A	T BOARD, COMPLETE *****************	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	*A-1654-020-A	T BOARD, COMPLETE *****************	(KV-28WS3B)
	*A-1654-019-A	T BOARD, COMPLETE *****************	(KV-28WS3U)
		< CAPACITOR >	
C5101	1-104-664-11	ELECT 47MF 20% 25V	
C5110	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5111	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	(KV-28WS3B)
C5112	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3U)
C5113	1-163-024-00	CERAMIC CHIP 0.018MF 10% 50V	(KV-28WS3B)
C5114	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5115	1-163-085-00	CERAMIC CHIP 2PF 0.25PF 50V	
C5116	1-163-090-00	CERAMIC CHIP 7PF 0.25PF 50V	
C5117	1-107-682-11	CERAMIC CHIP 1MF 10% 16V	(KV-28WS3B)
C5118	1-124-925-11	ELECT 2.2MF 20% 50V	
C5119	1-124-925-11	ELECT 2.2MF 20% 50V	
C5120	1-104-664-11	ELECT 47MF 20% 25V	
C5121	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5122	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5123	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C5125	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C5127	1-126-965-11	ELECT 22MF 20% 50V	
C5128	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C5129	1-163-016-00	CERAMIC CHIP 0.0039MF 10% 50V	(KV-28WS3B)
C5130	1-104-664-11	ELECT 47MF 20% 25V	
C5131	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C5132	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	(KV-28WS3B)
C5133	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5134	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5135	1-104-664-11	ELECT 47MF 20% 25V	
C5136	1-104-664-11	ELECT 47MF 20% 25V	(KV-28WS3B)
C5137	1-163-024-00	CERAMIC CHIP 0.018MF 10% 50V	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
C5139	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	(KV-28WS3B)
C5140	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	(KV-28WS3B)
C5142	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	(KV-28WS3B)
C5144	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	(KV-28WS3B)
C5145	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5146	1-104-664-11	ELECT 47MF 20% 25V	
C5149	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C5150	1-126-933-11	ELECT 100MF 20% 16V	
C5151	1-126-964-11	ELECT 10MF 20% 16V	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-126-933-11	ELECT 100MF 20% 16V	(KV-28WS3B)
C5152	1-124-925-11	ELECT 2.2MF 20% 50V	
C5154	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
		< FILTER >	
CF5101	1-760-106-11	FILTER, CERAMIC	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-567-100-00	FILTER, CERAMIC	(KV-28WS3B)
CF5102	1-760-450-21	FILTER, CERAMIC	(KV-28WS3B)
CF5103	1-760-106-11	FILTER, CERAMIC	(KV-28WS3B)
	1-567-100-00	FILTER, CERAMIC	(KV-28WS3U)
		< CONNECTOR >	
CN5151	1-568-882-51	PIN, CONNECTOR 7P	
CN5152	*1-568-882-51	PIN, CONNECTOR 7P	
		< TRIMMER >	
CT5104	1-409-430-11	TRAP, CERAMIC	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
	1-409-333-00	TRAP, CERAMIC (6.0MHz)	(KV-28WS3U)
CT5105	1-760-154-11	TRAP, CERAMIC	(KV-28WS3B)
		< DIODE >	
D5102	8-719-914-43	DIODE DAN202K	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
D5103	8-719-914-43	DIODE DAN202K	(KV-28WS3B)
D5104	8-719-914-43	DIODE DAN202K	(KV-28WS3B)
		< IC >	
IC5102	8-752-072-94	IC CXA1875AM-T4	
IC5103	8-759-361-11	IC TDA9813T/V3-T3	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	8-759-360-90	IC TDA9814T/V3-T3	(KV-28WS3B)
IC5104	8-759-710-86	IC NJM2233BM	(KV-28WS3B)
		< COIL >	
L5101	1-408-419-00	INDUCTOR 68UH	
L5102	1-408-408-00	INDUCTOR 8.2UH	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-408-407-00	INDUCTOR 6.8UH	(KV-28WS3B/28WS3U)
L5103	1-408-411-00	INDUCTOR 15UH	
L5104	1-408-876-00	INDUCTOR 0.22UH	(KV-28WS3B)
L5105	1-412-748-21	INDUCTOR 10UH	(KV-28WS3B)
L5106	1-412-754-21	INDUCTOR 39UH	(KV-28WS3B)
L5107	1-408-421-00	INDUCTOR 100UH	
L5108	1-408-413-00	INDUCTOR 22UH	
L5109	1-408-419-00	INDUCTOR 68UH	
T5101	1-403-686-11	COIL	
		< TRANSISTOR >	
Q5104	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
Q5105	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
Q5106	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3B)
Q5107	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3B)
Q5108	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q5109	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q5110	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3B)

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REF.NO.	PART NO.	DESCRIPTION	REMARK
Q5111	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3B)
Q5112	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3B)
Q5113	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3B)
Q5114	8-729-022-54	TRANSISTOR 2SC3779C,D-AA	
Q5115	8-729-216-22	TRANSISTOR 2SA1162-G	
Q5116	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q5117	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-28WS3B)
Q5118	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS3B)
Q5121	8-729-027-59	TRANSISTOR DTC144EKA-T146	(KV-28WS3B)
		< RESISTOR >	
JR5101	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR5102	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
JR5105	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
JR5106	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
JR5107	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
JR5108	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR5109	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR5110	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
JR5111	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
JR5113	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
JR5114	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
JR5115	1-216-296-91	METAL GLAZE 0 5% 1/8W	(KV-28WS3B)
JR5116	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR5117	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R5112	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3B)
R5113	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R5114	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R5115	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3B)
R5116	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3B)
R5117	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3B)
R5119	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
R5120	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R5121	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R5122	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R5123	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
R5124	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
R5125	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R5126	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R5127	1-216-043-91	METAL GLAZE 560 5% 1/10W	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
R5128	1-216-043-91	METAL GLAZE 560 5% 1/10W	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
R5129	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
R5130	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R5131	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K)
	1-216-043-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B/28WS3U)
R5132	1-216-029-00	METAL GLAZE 150 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-027-00	METAL GLAZE 120 5% 1/10W	(KV-28WS3B)
R5133	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R5134	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R5135	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R5136	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R5137	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R5138	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R5139	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R5140	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(KV-28WS3B)
R5141	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-28WS3B)
R5142	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R5143	1-216-689-11	METAL GLAZE 39K 5% 1/10W	
R5144	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R5145	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R5146	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R5147	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R5148	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-017-91	METAL GLAZE 47 5% 1/10W	(KV-28WS3B)
R5149	1-216-180-00	METAL GLAZE 180 5% 1/8W	
R5150	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R5151	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R5152	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-28WS3B)
R5153	1-216-174-00	METAL GLAZE 100 5% 1/8W	
R5154	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R5155	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R5156	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R5158	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R5160	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3B)
R5161	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-28WS3B)
R5162	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-28WS3B)
R5163	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R5164	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-28WS3B)

The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK
R5165	1-216-025-91	METAL GLAZE 100 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-043-91	METAL GLAZE 560 5% 1/10W	(KV-28WS3B)
R5166	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3B)
R5168	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS3B)
R5169	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3A/28WS3D/28WS3E/28WS3K/28WS3U)
	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-28WS3B)
R5170	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R5171	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R5176	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R5177	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R5178	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R5180	1-216-222-00	METAL GLAZE 10K 5% 1/8W	
R5181	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R5182	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(KV-28WS3B)
R5183	1-216-174-00	METAL GLAZE 100 5% 1/8W	
R5184	1-216-180-00	METAL GLAZE 180 5% 1/8W	

< VARIABLE RESISTOR >

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV5101	1-241-765-11	RES, ADJ, CARBON 22K	
RV5102	1-241-765-11	RES, ADJ, CARBON 22K	(KV-28WS3B)
SF5101	1-760-538-11	FILTER, SURFACE WAVE	(KV-28WS3A/28WS3D/28WS3E/29WS3K)
	1-579-273-11	FILTER, SURFACE WAVE	(KV-28WS3B)
	1-760-757-11	FILTER, SURFACE WAVE	(KV-28WS3U)
SF5102	1-760-244-11	FILTER, SURFACE WAVE	(KV-28WS3B)

< TUNER >

REF.NO.	PART NO.	DESCRIPTION	REMARK
TU5101	1-693-315-21	TUNER (UV1316)	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
	1-693-314-21	TUNER (U1344)	(KV-28WS3U)

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MISCELLANEOUS
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REF.NO.	PART NO.	DESCRIPTION	REMARK
	⚠ 1-409-646-11	COIL, DEGAUSSING	
	1-452-032-00	MAGNET, DISK; 10MM 0	
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM 0	
	⚠ 1-452-724-11	COIL, NA ROTATION (RT-165)	
	⚠ 1-453-187-11	TRANSFORMER ASSY, FLYBACK (NX-2661/U2E)	
	1-504-418-21	SPEAKER (5CM)	
	1-505-154-11	SPEAKER (6.5CM)	
	1-505-155-11	SPEAKER (10CM)	
	⚠ 1-540-006-22	CAP ASSY, HIGH-VOLTAGE	
	⚠ 1-571-433-21	SWITCH, PUSH (AC POWER)	
	1-693-315-21	TUNER (UV1316)	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
	1-693-314-21	TUNER (U1344)	(KV-28WS3U)
	⚠ 1-751-680-11	CORD, POWER (WITH NOISE FILTER) 2.5A/250V	(KV-28WS3A/28WS3B/28WS3D/28WS3E/28WS3K)
	⚠ 1-590-762-11	CORD, POWER (WITH PLUG) 2.5A/250V	(KV-28WS3B)
	⚠ 8-451-433-11	DEFLECTION YOKE (Y28GICM)	
	⚠ 8-453-005-31	NECK ASSY, (NA297-M3)	
V901	⚠ 8-737-762-05	PICTURE TUBE (SD-284)(W66LGY010X)	

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ACCESSORIES AND PACKING MATERIALS
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REF.NO.	PART NO.	DESCRIPTION	REMARK
	1-765-654-11	CABLE, SPEAKER	
	*4-050-192-01	CUSHION (LOWER) (ASSY)	
	*4-050-191-11	CUSHION (UPPER) (ASSY)	
	*4-050-193-01	INDIVIDUAL CARTON	
	4-203-155-41	MANUAL, INSTRUCTION (KV-28WS3A) (ITALIAN)	
	4-203-155-51	MANUAL, INSTRUCTION (KV-28WS3B) (FRENCH)	
	4-203-155-11	MANUAL, INSTRUCTION (KV-28WS3D) (GERMAN/ENGLISH/DUTCH/GREEK/FRENCH/ITALIAN)	
	4-203-155-71	MANUAL, INSTRUCTION (KV-28WS3E) (DANISH/DUTCH/FINNISH/FRENCH/GERMAN/NORWEGIAN/PORTUGUESE/SPANISH/SWEDISH)	
	4-203-155-91	MANUAL, INSTRUCTION (KV-28WS3K) (BULGARIAN/CZECH/HUNGARIAN/RUSSIAN/ENGLISH/POLISH)	
	4-203-155-61	MANUAL, INSTRUCTION (KV-28WS3U) (ENGLISH)	
	*4-395-957-01	BAG, PROTECTION	

REMOTE COMMANDER
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REF.NO.	PART NO.	DESCRIPTION	REMARK
	1-466-854-41	COMMANDER, STANDARD TYPE (RM-850)	
	1-473-407-11	COMMANDER, STANDARD TYPE (RM-838)	
	9-903-466-01	POCKET, COVER (FOR RM-838)	

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